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Criticism of Meat and Food Inspectors Unjustified

Sensational press items based on conclusions recently made public by the National Civil Service Reform League are obviously unfair to Federal meat inspection, pure food law enforcement, and other protective services of the United States Department of Agriculture. This was the unanimous opinion of high department officials who expressed regret over the league's sweeping conclusions to the effect that public health is not properly safeguarded by inspection systems and in which fully trained and qualified Federal inspectors were subjected to the same criticism as local political appointees assigned to inspection work.

Meat Inspectors Specially Trained

Without questioning the right of any organization to announce its opinions freely, department officials considered the press reports as extremely misleading to the public. "The facts regarding Federal meat inspection are briefly these:" Dr. John R. Mohler, Chief of the Bureau of Animal Industry of the department, stated. "Veterinary inspectors engaged in the work must be graduates of a four years' course in an accredited veterinary college, then must pass a civil service examination, and in addition are especially trained for their duties. The inspection begins when live animals are received for slaughter, includes a thorough ante-mortem and post-mortem examination, then a rigid inspection of products such as smoked and cured meats, lard, and by-products, and a final inspection when meats and their products leave the inspected establishments. Owing largely to the skill and ability of livestock producers and favorable conditions for stock growing in the United States, the vast majority of the animals inspected are healthy. However, during the last fiscal year approximately 300,000,000 pounds of meat were condemned by Federal inspectors.

Service Is Strictly Professional

"The regulations under which inspection is conducted were established by a commission of physicians, veterinarians, sanitarians, and qualified public officials chosen with special reference to protecting public health. Federal inspection is maintained at more than 800 establishments, and the inspectors in charge will gladly explain the work to visitors. The league's assumption that the meat-inspection service, by reason of being in the Department of Agriculture, might be biased in favor of farmers or any other class, is a false assumption and is entirely unwarranted. Federal meat inspection is strictly professional and, in justice to the several thousand employees in this important service, I may state that they are loyal to their public trust, self-respecting, and undeserving of the sensational criticisms made. Some months ago the Bureau of Animal Industry furnished the National Civil Service Reform League with certain information asked for and was ready to assist it in obtaining authentic information, but no further assistance was requested.

Inspection Stamp is Guide to Public

"Since Federal meat inspection applies only to meats and their products handled by establishments doing an interstate or foreign business, there is some basis for the league's conclusions regarding non-federally inspected slaughter. But as the latter is only about a third of the total, sweeping conclusions were not justified. Federally inspected products can be readily identified by the familiar inspection stamp on fresh meat and by the labels of canned and package goods."

Department officials in charge of the enforcement of the Federal food and drugs act and other inspection duties of similar character note the fact that the publicity given out by the league apparently does not apply to Federal pure food law enforcement, but that the charges of inefficiency are directed against state and municipal enforcing authorities. These department officials emphatically express their disapproval of charges of such a sweeping character based upon isolated observations. In the light of their own knowledge, obtained through cooperative relationships of many years standing, they say that the vast majority of state and mu-

nicipal enforcing officials are honest and efficient. Many of them are specially trained for their duties and have professional attainments of a high character.

The officials of the Bureau of Chemistry, which enforces the Federal food and drugs act, note that the report of the league upon which the press item was based, although 134 pages in length, contains but very brief references to the work of the Bureau of Chemistry, and that these statements are extremely general and in many respects inaccurate and entirely misleading. It is a fact that all employees enforcing the Federal food and drugs act are appointed under Civil Service rules and that appointments of inspectors are now made only from registers obtained from the Civil Service Commission of men who have been graduated from some recognized college or university with professional qualifications of chemist.

WHAT SCIENTIFIC MEDICINE HAS ACCOMPLISHED

The last fifty years have seen many marvelous conquests in medicine and surgery.

The foundation of modern aseptic surgery was laid by Lord Lister of Glasgow in his discovery of the value of chemical antiseptics. Preventive inoculation as demonstrated by Pasteur of France has saved thousands of lives.

The discovery of diphtheria antitoxin by Von Behring of Germany, made possible an 80 per cent reduction in the mortality rate from this disease.

As a result of inoculation and sanitation typhoid will in time be entirely eradicated. In the Spanish American War, one out of every 71 men died of typhoid; in the recent world war, the application of the proper preventive measures reduced this mortality to one out of every 20,000.

General William C. Gorgas, putting into practice at Havana and Panama, the theory that yellow fever was carried by the mosquito, succeeded in eradicating this dread disease from the world, and made possible the greatest engineering feat of our generation, the completion of the Panama Canal, which up to that time had cost thousands of human lives and billions of dollars because of disease.

The discoveries of the X-Ray by Roentgen, and radium by the Curies, have contributed much to human welfare.

Recently Banting has conferred a long sought boon upon humanity in his insulin treatment for diabetes.

In the last ten years the general mortality rate in the United States has been cut one-seventh. In thirty years it has been cut one-third. If the death rate of 1880 prevailed in 1922, the number of deaths would have been 750,000 higher. In other words, the medical and sanitary progress of forty years is saving nearly a million lives a year. At the same time the average length of life has been increased from 20 years in the sixteenth century to 58 years at the present time. In two decades alone it has been lengthened eight years, and it is probable that the next half century will see another 20 years added.

AUTOMOBILE FATALITIES

The U. S. Department of Commerce announces that the returns show that during the year 1924, 15,528 deaths resulting from accidents caused by automobiles and other motor vehicles (excluding motor cycles unless in collision with automobiles) occurred within the death registration area of the United States (exclusive of Hawaii), which area contains 88.4 per cent of the total population. This number represents a death rate of 15.7 per 100,000 population as against 14.9 in 1923, 12.5 in 1922, 11.5 in 1921, and 10.4 in 1920.

The Bureau of the Census assigns the cause of death from collisions between two vehicles to the heavier vehicle; therefore these totals do not include collisions between automobiles and electric cars and railroad trains.—Public Health Reports, Dec. 11, 1925.

ANIMAL DISEASE PROBLEMS WHICH URGENTLY NEED SOLUTION

There always are, and doubtless there always will be, disease problems to solve—as much in connection with the animal kingdom as that of man—but some of these have more immediate urgency than others.

Glanders and rabies have been eradicated from Great Britain through the aid and application of veterinary research, and benefit is by this means conferred upon man as well as upon the animal world. Anthrax and tuberculosis are now under government observation, and to be infected with mange, in so far as the horse is concerned, means notification and compulsory treatment. Foot-and-mouth disease of cattle and distemper of the dog and cat, each supposed to belong to the ultra-visible virus group, have up to the present baffled the brains of our best scientists at home and abroad, and cancer is as prevalent amongst our patients as amongst those of the human doctor.

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Workers with the diseases of sheep and lambs are hoping to demonstrate preventive methods against several of these devastating ailments during the coming spring, and altogether one can see that veterinary research is moving in an upward direction. The profession lives in hopes, and one hopes that its desires will be realized. It is for those who work in the laboratory and those who work in the field to collaborate unselfishly for this end.—The Veterinary Journal.

Why does superstition make a stronger appeal today than it did a half century ago? Why do men and women leave scientific medicine and go to charlatans? The scientific mind which trusts in reason is a recent acquisition—as compared with the antiquity of the race—born but yesterday; its place in our mental make-up is insecure; it is exacting and mankind is mentally lazy. The recent trial in Tennessee, the suit brought in the District of Columbia, the statements of the fundamentalists, all show that our liberties are in danger. Public health cannot survive the death or the suppression of the fundamental sciences. It has been plainly shown that even in a court of justice the scientists will not be allowed to have their say and to present the irrefutable evidence on which their beliefs are founded.—American Journal of Public Health.

The Veterinary Record quotes the following story from the Evening Standard: Bismarck had ninety-nine doctors before at last he came to Professor Schwenniger, who succeeded in reducing his fat. Schwenniger, at his first interview, pestered his patient, the "Iron Chancellor," with so many questions as to his habits of life, that at last the Prince lost his patience, and said: "You ask me too many questions." "Very well," said Schwenniger, "you go to a veterinary surgeon as he won't ask you any."

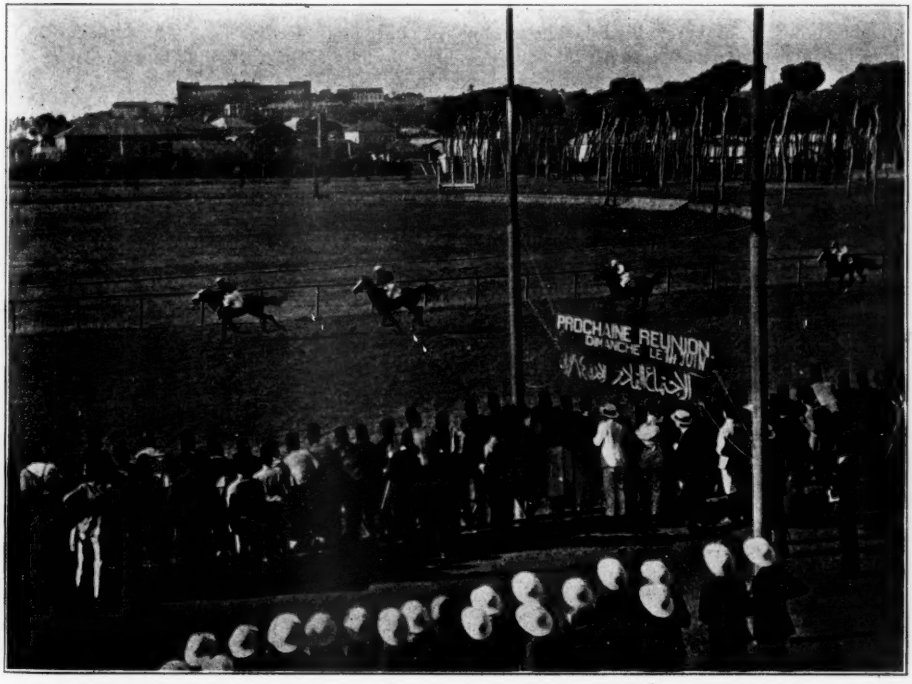

Photo by Adelbert Bartlett, Los Angeles

Beirut, Syria—Fleet desert Arab horses running in the annual race classic at the French mandate government race track at Beirut. The Syrians and Arabs love horse racing. The palace of the French High Commissioner of Syria faces upon this race track, which is one of the best equipped in the Orient.

SANITATION A GOOD INVESTMENT

The Lancet (London) calls attention to some points, not usually recognized, which show what a good investment sanitation is. The strict inspection of vessels passing through the Panama Canal has had a marked educational effect on the neighboring ports, and shipmasters, who fear detention by quarantine. The ports are cleaned up and shipmasters ask for rat destruction. Apart from their being carriers of disease, the shipmasters have learned the comfort of being without rats and vermin.

Sir Malcolm Watson has calculated that in Malaya certain estates employing 29,068 coolies have, through malaria prevention, saved 114,000 pounds (normally $552,000) or almost $20.00 per laborer. Applied to rubber production, it is a saving of 4 cents on the pound, and with an average of 10 pounds of rubber in the average automobile tire this saving amounts to $2.00 for the five tires usually carried. It is seen, therefore, that automobile owners and all who use rubber in any form are directly affected by malaria prevention, which is the greatest single cause of disease in the producing countries, though sanitation of every kind is known by physicians and sanitarians to pay handsome dividends. The campaign of education showing such facts to the public has already brought rich results and should be continued vigorously.—American Journal of Public Health.

Hookworms are found in man, dog, fox, cat, pig and ruminants. The dog forms, Dochmoides stenocephala and Ancylostoma caninum, have a life-cycle very similar to those in man. The infective larva is capable of piercing the skin, and infection is normally caused by this method. The larva passes through the blood stream to the lungs and hence to the small intestine, where it develops into the bloodsucking adult. It is a source of considerable weakness and anemia in dogs—especially in dogs which are kept in numbers in the same place, such as packs of hounds.—T. W. M. Cameron in The Veterinary Record.

I join with Dr. Cameron in praising the work of Hall and his colleagues with regard to anthelmintics. He has also given prominence to the experiments of earlier workers. His little book ("Diagnosis and Treatment of Internal Parasites," M. C. Hall, Veterinary Medicine, Chicago, 1923) should be of great use to many practitioners.—A. W. Noel Pillers in The Veterinary Record.

It may be of interest to draw attention to what appears to be the continual change of names in helminthology. This change is more apparent than real in many cases. One of the most important of modern advances has been the creation of a set of rules of nomenclature. At one time if a scientist did not like a name or considered it inappropriate he changed it, and the result brought the greatest confusion into literature. Now it has been decided that a specific name once given cannot be changed unless the same name has previously been given to another species in the same genus. This harking back to the original name has produced a certain amount of temporary confusion, but the result will be of incalculable benefit to workers in the future.—T. W. M. Cameron in The Veterinary Record.

It has been estimated that approximately 20,000,000 people died of flu during the world wide pandemic in 1917 and 1918.

B. acidophilus can be implanted into the ceca of chickens by feeding acidophilus milk. Chickens that are fed a diet containing lactose or dry skim milk have a degree of resistance against coccidial infection.

AMERICAN PUBLIC HEALTH ASSOCIATION RESOLUTION ON MILK ORDINANCES

Whereas, there now exists a great variety of dissimilar and conflicting milk ordinances and of regulations for their enforcement, and

Whereas, this creates an unfortunate situation which is unfair to the producers of milk, and

Whereas, it leads to conflicts between the dairy industry and health departments, with resulting lack of confidence in such ordinances and regulations on the part of producers, consumers and the courts, and

Whereas, the public health is thereby menaced through the exercise of less care by the producers and through decreased consumption of milk, be it

Resolved, that this Association go on record as favoring the creation and adoption of a simple standard milk ordinance, embodying the essential principles with regulations for their enforcement suitable for the many different sizes and types of communities to be protected, and that this be referred to the Committee on Dairy Products.

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Treatment of Pneumonia and Metritis in Cattle

John F. DeVine, D. V. S., Goshen, N. Y.

Every country practitioner is acquainted with the fact that in the past the treatment of pneumonia in cattle has been anything but satisfactory; the milder cases responding but the more severe cases usually terminating fatally. After having repeatedly experienced during the past twenty-five years outbreaks of pneumonia in cattle which I was absolutely helpless in checking and in which treatment seemed of little avail, I feel that I am in a position to know how any information that anyone may give to the country practitioner that will aid him in successfully combating this disease, will be received. Again, practitioners know only too well that what has been true of pneumonia in cattle has been equally true with severe cases of metritis and metroperitonitis in the bovine. Hence, this article is addressed principally to the rural practitioner.

Stock Yards Pneumonia

In treating pneumonia in cattle no matter what our medication may be, we never think of treating a case without using hemorrhagic septicemia bacterin or the mixed infection bacterin, which contains also the killed septicemia organisms. The reason for this is that from clinical experience, I am of the opinion that most severe cases of pneumonia are dependent largely upon the group of organisms incriminated in hemorrhagic septicemia, or so-called stock yard pneumonia. We repeatedly see how rapidly fatal pneumonia may be brought on in cattle by exposure or shipping and how in such cases these organisms predominate. As to the ultra-scientific aspects of this argument, I have no concern. My concern has always been to save the stockman's cattle, being quite willing to resort to anything that would do it. It is common knowledge that clinical results often precede scientific explanation and where it does it is good enough for me. In treating all pneumonias in addition to our stimulation it is our custom to give an injection of a large dose of bacterin (6 or 8 cc.) night and morning for the first two or three days and then a lesser dose daily for the next few days. Let the theory of bacterins be what it may as to their being useful only in chronic conditions and at set intervals. We are thoroughly satisfied from clinical experience that bacterins are positively useful in acute infections and that they should be used more as we would use a drug rather than at arbitrary intervals and the more acute the case, the larger the dose.

Metritis

In cases of metritis that are nearly always occasioned by retained placenta, there are but two problems involved. First, treating the uterus; second, sustaining the physical condition of the animal. For the latter we rely upon mixed metritis bacterin, given as we give bacterin in pneumonia and a preparation that has served us well, containing hyposulphite of soda, ginger, nux vomica and fenugreek.

As to the handling of the uterus, there are two things to keep in mind. One is to cleanse the uterus without doing it injury and the other is to keep down putrefaction. In cleansing the uterus, I personally prefer, when I can, a thorough irrigation and syphoning out until it is literally cleansed, using a hot alkaline solution, the temperature of which should be around 112 to 115 F. (lukewarm water has but little or no value and unless thoroughly syphoned out is positively harmful), beginning about twenty-four hours after abortion or parturition has taken place and continuing daily where it is practicable until the uterus is free of all material, so far as possible, that may invite putrefaction or until it has involuted so that it is impossible to pass the hand through the cervix, when vaginal douching, uterine capsules and gentle massaging where practicable, every day or two, is resorted to if necessary. However, the necessity of prolonged treatment is very rare when the case has had proper attention from the onset. After each douching something should be placed in the uterus and spread about over the membranes, if they are still intact, to lessen decomposition or the work of the secondary invaders until the uterus can be douched again. A mixture that is light and satisfactory may be made of boric acid, iodoform and thymol. This may be put in a capsule, the lid of the capsule removed and after it has been carried into the uterus, its contents spread around where desired. Where a uterus has been neglected and putrefaction is rampant, under no

conditions should anyone attempt to douche such a uterus.

I here restate what I have repeatedly stated before:

Retained Placenta

When a placenta is retained it is an indication that there must be more or less unnatural adhesion between the fetal membranes and the internal surface of the uterus. It has been the custom for years by both empiric and trained veterinarians when called to attend these cases to remove all or part of the membranes by manipulations, commonly spoken of as "unbuttoning." The old rugged grade cow with a hardy constitution even under the roughest of handling usually withstood this ordeal, often never missing a feed or decreasing one pound in her milk flow; even some pure breds withstood this crude handling pretty well until the organic changes caused by the Bang organism became so severe as to apparently heighten the susceptibility of infection and absorption in our pure breds.

First let me say that we should never, never use force to remove a placenta from the uterus of a pure bred or delicate high grade cow. It is true that occasionally we are called to see an animal with a retained placenta where adhesions are very slight, with only a pinching of the membranes at the extreme end of the cornua or slight adhesion of a few of the cotyledons which is soon released by very little manipulation and the animal is thereby relieved practically as normally as though the membranes had been discharged without aid; but where adhesions are more extensive it is my judgment that the only safe and sane way known to our profession today is douching of these membranes with a hot alkaline solution until every loose shred has been washed away. Some of the membranes should be allowed to hang through the os as this will retard its contraction, and it is well if possible to loosen all membranes before the os contracts so much as to prevent the introduction of the hand. It seems almost superfluous to add that the membranes should not be allowed to hang out of the vagina thereby keeping the tail and hind parts soiled, but cut off so that they simply hang through the os, and common decency demands that the tail, hindquarters and udder be kept clean so as to avoid contamination of the milk or the internal structure of the udder. We will find after two or three days of douching the capillaries of the cotyledons and the endometrium contract and assume more firmness thereby lessening the danger of infection, and the adhesions between the membranes and the cotyledons gradually give way so that by gentle manipulation they can usually be removed completely with safety in from three to five days.

With rare exceptions there is no true growing together of the maternal and fetal cotyledons, it is simply a resultant swelling from the inflammatory condition that dovetails them, so to speak, so tightly that the tufts of the chorion are held firmly to the maternal cotyledons.

This being so with our present knowledge of surgery and asepsis would not hot douching to soothe, cleanse and loosen these membranes be a reasonable thing to do? Water should be as hot as one can work with, with bare hands (112 to 115 F.).

In such cases where the os contracts rather rapidly massaging of the uterus through the bowel gently and patiently is sometimes quite as effective, in fact, in some cases it seems more so, in breaking loose any remaining shreds of membrane or other debris that may remain in the uterus, by first introducing the tube in the uterus as far as one can, having an assistant pump with good force and massaging the uterus through the bowel with the other hand and in this manner by repeated filling and emptying one is able to give it a thorough cleansing. Thorough cleansing of a recently gravid uterus cannot be accomplished with a few quarts of lukewarm water, the water should be as hot as one can work with, with bare hands, and may require ten to fifteen gallons to be carried by the hose and massaged into every part of the cornua. It is not at all uncommon by this method to wash away pieces of membrane as large as a man's handkerchief. This can be done daily or twice daily until the uterus is absolutely clean so far as is perceptible by the appearance of the fluid returned, without in the least disturbing or irritating the most delicate cow, providing due care is exercised, the finger nails short and the bowel given plenty of time to dilate as the hand is passed forward.

There is just one danger in douching a uterus of this character, that to caution one with veterinary training to guard against seems little short of ludicrous, and that is, if the cervix is so contracted that the tube fills its entire volume leaving no space for the return of the fluid from the uterus as it is pumped in, and one does not stop pumping when the uterus is filled and press out the fluid but rather keeps on pumping, it is entirely within reason that one might accom-

plish what they are apparently bent on, that is, rupturing rather than cleansing the uterus. This cleansing is to be continued daily until the uterus has contracted and all discharges cease. It is well to have such animals receive vaginal douching by stable attendants twice weekly for at least a month.

The advantage of this is obvious to all who have had practical experience in cleansing a uterus when the membranes have been retained. Since after the uterus appears to be clean if we later examine the vagina we will find more or less of a purulent discharge lying on its floor for several days or weeks after. This is frequently in evidence in the gutter behind the cow if the vagina treatment is not continued as suggested. Clinical experience leads me to believe that this thorough cleansing of the genital tract is the important factor that makes possible the control of endometritis, abortion and sterility with our present knowledge.

The infecting of a healthy uterus, abortion, retention of the membranes, spreading of virus, pathological changes in uteri, tubes and ovaries, and subsequent sterility constitute a cycle that must be attacked either at the ports of infection, let them be either vaginal or per os, a thing that is not always easy to accomplish, or immediately after abortion occurs to correct so far as possible uterine changes and prevent extension of the inflammatory processes.

The question of douching the uterus in a case of retained placenta is opposed rather vigorously by some veterinarians, arguing that there is great danger of rupturing this organ. I cannot refrain from stating that a veterinarian or anybody that manipulates a uterus, such as we are discussing, with his hand and a soft rubber tube severe enough to rupture it is not fit to be trusted with the care of valuable stock. There are certain uteri that should not be douched, and every veterinarian should know this before he attempts this character of work.

First, there is no reason or excuse for douching a uterus immediately after parturition unless it has become in some way seriously infected by manipulation. Time should be given for Nature to do its share so far as it can. I can recall that even empirics were informed on this a quarter of a century ago.

Secondly, a ruptured uterus obviously should not be douched. There is no excuse for this careless act, but nevertheless it is done. A man who does not carefully cleanse the external genitals and make a careful examination of the uterus before beginning treatment or handling of it will come to grief sooner or later. This is not only so in the case of douching but like careless methods are used by some in cases of dystocia. Let me remind you that there are more uteri ruptured where parturition is obstructed, by the labor efforts of the cow where by the force of the diaphragm and abdominal muscles the fetus is jammed in the bony cavity and the membranes ruptured allowing the fluid to escape thus exposing the extremities of the fetus directly against the internal surface of the uterus at a time when it is greatly distended and in the throes of labor, than are ruptured by capable veterinarians in handling dystocia.

Even with the fetus in the uterus ruptures can usually be located if proper careful examination is made, since at least 90 per cent of all ruptures are either in the fundus or in the superior part of the gravid horn. This is quite obvious when we consider as we have said that these are the parts that come in contact with the bony cavity and are forced upward and backward by the softer organs.

Naturally there is nothing to interfere with a careful examination after the fetus has been delivered and we are treating the membrane only and this examination should be made before we douche the animal and not after. True, the greater the distention naturally the thinner are the walls, but anyone with obstetrical experience knows that the uterus is rather a strong organ and will stand considerable handling in removing the fetus or in replacing an everted uterus, it is naturally stronger 24 hours after when the walls have contracted and thickened somewhat, and for an intelligent operator to rupture such a uterus which has withstood the natural labor forces with a soft rubber hose and water seems beyond reason.

Third, there is still another condition under which we are not justified in douching the uterus and that is when we are called to see an animal that has freshened a week or so before where the membranes have been held and the uterus either has received no attention and the membranes have undergone decomposition, or where the membranes have been forcibly removed thereby leaving a raw surface allowing absorption of the putrid uterine content; in either of these cases we are apt to have a resultant metritis or metroperitonitis accompanied with considerable temperature, complete anorexia, suppression of the milk flow, loss of flesh and a haggard look usually terminating in puerperal septicemia and death.

If we examine the uterus we will find the walls almost as putrid as the content. They are

lifeless, slimy or friable and decomposing, in such a condition that the weight of one's finger almost penetrates. I could never quite understand why anyone would attempt douching a uterus of this kind.

As to instruments my choice has been for some fifteen years, a pump and tube, which is considered by some dangerous; I was, however, somewhat pleased to read in the April, 1917, number of the Cornell Veterinarian a translated article of Prof. J. Albrechtsen, in which he states that: "After twenty years' experience that irrigation with a common tube and funnel has in most cases little or no influence, and experience has shown me that mechanical cleansing is of chief importance and that the pump is far preferable to the common funnel and hose."

I am free to admit that I am not able to draw out every bit of the fluid from the recently gravid cornua when the membranes are still there continuously blocking up the mouth of the syphon; likewise I have been unable to devise a method whereby I could pick up a recently gravid cornu and squeeze its contents out; in fact, I would be quite interested in inspecting the arm and hand of a man who would be able to do this, consequently I do not ask a lay assistant to do what I cannot do myself.

It is true that this can be done in a few days if the uterus contracts rapidly so as to become small enough to handle it conveniently, but any practical man knows that if you fill a uterus of this sort with a hot douche you will excite contraction and straining so that the animal will eject practically all of it in a short time.

This method of handling retained placenta with the judicial use of metritis mixed bacterin will at once rob these cases of all the terrors of the past.

Problems of the Poultry Practitioner

Advertising as a means of getting before the poultrymen is a subject that might well be discussed. Local newspapers will sometimes accept short articles dealing with community poultry problems. Addressing farm clubs and poultry clubs is another useful means of advertising. On the subject of publicity one is forced to conclude with Dr. Dykstra who in a recent address said: "The profession can advertise itself in no better way than by a wholesome optimism and a spirit of enthusiasm, because there is for the veterinarian as big and broad a field of human endeavor as that offered to any other group of professional men."

When attending other sick animals on the farm one should never lose an opportunity to talk poultry. Ask the farmer about his chickens. Tell him about new information you have recently gained, or poultry shows you have attended; in the course of time you will have been instrumental in promoting good poultry to replace the farmyard mongrel.

Advice on management or diseases when not called for specifically may well be given at times. If done tactfully it may lead to further inquiry and consultation.

Remuneration

The problem of remuneration in poultry practice is one that must be carefully figured. A veterinarian can not be expected to render professional service free to his poultry clients any more than to others. Nor is free service often requested. Even at the state laboratory those seeking information and help seldom miss the opportunity to offer pay for services rendered. There is one feature which might be copied after commercial concerns to apparently good advantage. That is of featuring new products at a reduced price in order to introduce them more generally. Some men have offered to do poultry autopsy free of charge if birds are brought to their office. This is no doubt a good advertising feature but it should be continued only until a reputation has been established.

The sales of drugs may return a limited amount of revenue. Care should be exercised that one's professional reputation is not placed in jeopardy by the indiscriminate sale of advertised preparations. More knowledge is needed regarding the action of drugs in poultry. The work we have done recently indicates that many drugs recognized as useful in the treatment of ailments in other animals are not capable of exerting the same actions on fowls. However, there is a demand for drinking water antiseptics, vermifuges, tonics and parasiticides which must be filled. If the veterinarian does not satisfy this demand the patent medicine fakers will reap a richer harvest. In prescribing drugs do not over-estimate their powers but insist on the additional help of proper feeding, housing and sanitation. With this adjuvant many simple drugs will yield gratifying results. Under no circumstances should one give anyone an op-

portunity to class the veterinarian with the patent drug faker. And in this connection, never let an opportunity pass to spread the true gospel which will eventually put the patent medicine traffic out of existence. Get all the information you can about the preparations sold or advertised in your community and use that information freely but judiciously. You are saving money for your client by so doing.

When called to inspect a flock a per diem and mileage charge is often made. Many poultrymen engage veterinarians to perform their services by the day rather than by the bird, to the satisfaction of both parties.

The universal recognition of the necessity for protection against the ravages of bacillary white diarrhea places the control and eradication of this disease on much the same basis as the eradication of tuberculosis in cattle.

The collection of samples for the agglutination test for bacillary white diarrhea rightfully and properly belongs only in the hands of the practicing veterinarian. In Missouri our chief difficulty in promoting bacillary white diarrhea eradication work is the difficulty encountered in finding capable and willing veterinarians. With proper help one man can bleed five hundred birds in less than a working day. In the dull season the income therefrom may be duly appreciated.

In areas where avian tuberculosis is prevalent the testing of all breeding stock should be advocated as a routine procedure.

Surgery offers another opportunity for a ready income in poultry practice. Caponizing, sinus and foot operations, setting fractures, dubbing and other miscellaneous operations are activities which the veterinarian should specialize in. The poultryman should fully understand that his veterinarian is willing and capable of doing such work. The majority of people abhor the sight of blood and are more than willing to pay for having surgical work done for them. As a rule very few people know where they can get such work done unless they have a handy neighbor or a willing county agent.

Competition

This suggests another problem for the practicing veterinarian, that of competition. The hardest to combat is probably the advertisement of patent medicine firms and quack poultrymen who dote on "doctoring" chickens. As with many other kinds of competition all of this can not be successfully met. Thorough service with the establishment of a well informed clientele which will demand full returns for their money is the most satisfactory way of handling this problem.

Never become discouraged by such competition but learn their method and overcome their mistakes. In other words be an opportunist, which is defined as a man who meets the wolf at the door and appears down town the next day with a new fur coat.

Diagnosis

The problem of diagnosis is usually more simple in the case of fowls than in other classes of animals. The individual value of the ordinary bird is such that one or several autopsies can usually be performed without objections from the owner. In the diagnosis of poultry diseases, we have come to the point where we pay less attention to symptoms and more attention to history and autopsy findings. The importance of thoroughness in autopsy work can not be overemphasized. Very often a renewed and more minute search will reveal the exact cause of death after a hurried examination has been fruitless. We have reference here to such conditions as infestations of capillaria and very small tape worms in the intestines, occluding membranes in the trachea or inflammation of the internal ear as seen in many cases of wryneck. While the assistance of the diagnostic laboratory should be sought whenever necessary, yet we believe that the practitioner can diagnose the large majority of cases brought before him from the history and a careful autopsy. For practical purposes most of the cases will fall into one of the three main groups: accidental and unavoidable conditions, parasitism and infectious diseases.

Parasitic Conditions

In the management of parasitic conditions we recommend the use of tobacco products for flock treatment and oil of chenopodium for individual treatment as round worm expellers. Areca nut, arecalin, carbon tetrachlorid, male fern, thymol and other commonly used agents have not demonstrated active anthelmintic properties in our hands.

For the removal of tape worms we have no recommendations to offer. The familiar lye treatment often appears to give good results when used as a flock treatment. The prevention of teniasis by the removal of the intermediate host, probably most often flies, has been proved to be a practical measure by some poultrymen.

Infectious Diseases

The management of infectious diseases calls for the execution of the very fundamentals of sanitation, viz: isolation, destruction and disin-

fection. The practiced eye of the sanitarian can often detect errors in housing, ventilation, lighting and management which the owner has by familiarity of daily contact failed to notice.

As yet vaccines and bacterins have not found undisputed favor in the control of poultry diseases.

Summary

Some of the problems of the poultry practitioner are: To gain a favorable impression upon the poultryman by acquiring a thorough and practical knowledge of poultry diseases and poultry problems. To get acquainted with the poultryman by taking an interest in his shows and clubs as well as his birds. To dispense only reliable products. To make use of every available opportunity for doing poultry work as testing for disease carriers, surgery, flock inspection, autopsies and disease control. To collect suitable fees for his labor.—Missouri State Poultry Experiment Station, Mountain Grove, Mo.

Infant Mortality in Swine—Cause and Prevention*

A. T. Kinsley

Breeding Problems

Some breeders apparently do not realize that the boar constitutes fifty per cent of the breeding herd, at least many grades and scrub boars are in service. It is economical to use pure-bred boars for the breeding of market hogs. Care and judgment should be exercised in the selection of a boar particularly if he is to be used, as most of them are, in the production of breeding stock, as well as feeders.

The points sought in a boar by a good breeder are: big bone, large for his age, a long, wide, deep body, properly developed back, short neck and head, wide deep chest, low ham, short legs and good feet. He should stand well on his toes, have typical ears, wide space between the eyes, have the proper color, fine hair, good action, gentle disposition and show distinct masculinity. In selecting a herd boar, the appearance and development of the testicles should not be overlooked. Cryptorchids or boars in which either or both testicles have not descended into the scrotum should be rejected because such deformities are frequently transmitted to the progeny.

The care of the boar is of prime importance in successful breeding. In fact, the period of usefulness of any breeding animal is determined largely by the care and management. Boars should be kept separate preferably in a small pasture during the summer season. The winter care should include proper housing with ample bedding and a maintenance ration. A common mistake of breeders is that of keeping breeding boars too fat. Healthfulness and productivity of boars are dependent not only upon the proper housing and ration but also upon ample exercise. The ration for a boar should be carefully selected. During the non-breeding season a maintenance ration should be provided. From two weeks to a month prior to the breeding season, a ration of ground oats or barley or mill feed and milk or skim milk should be provided. When possible, green foods should be supplemented and in the big type hogs, it is advisable to supply extra quantities of minerals.

The requirements for a brood sow are practically analogous to those for the boar. Gilts for breeding purposes should be selected from families that are good milkers and prolific. They should have ten or twelve well developed teats. Avoid gilts with inverted teats for breeding purposes. Some breeders maintain that gilts that have been farrowed by mature sows are the best breeders. Sows are usually most prolific during the second, third, and fourth year. Gilts should not be bred until they are practically mature. The large type of swine do not become mature until they are about one year of age, and these swine should not be bred until they are at least ten months of age. Smaller type swine mature at an earlier age and can be successfully bred when they are six or seven months of age. The age at which a boar can be put into service is dependent upon the breed and the development of the individual. Boars of the large type breeds should not be put into general service until they are one year of age and even at that age the service should be restricted. Boars of the smaller breeds can do restricted service when six or seven months of

* Continued from January issue.

age. The frequency of service of a boar is a very important factor in successful breeding. One of the contributing factors in the production of small litters and excessive losses of recently farrowed pigs is pasture breeding. It is not infrequent for a boar running with sows to make ten or more services in one day. A single service is sufficient for the breeding of healthy animals and if animals are not healthy they should not be used for breeding purposes. Single service breeding requires extra time on the part of the breeder but the extra time required will be profitable. Under ordinary farm conditions it is most economical to produce two litters annually.

The general care of the brood sow is practically the same as that of the boar, except that several sows may be kept in the same enclosure during both winter and summer months or during the entire year, excepting the time of farrowing and for two or three weeks thereafter. Breeding should be so scheduled that farrowing will occur at a time when the pigs can be properly cared for.

Pig Losses at Farrowing Time

Farrowing or delivery of pigs is a normal physiologic process and is of little consequence in the wild hog. In the domestication and improving of swine to the present high standard some of the original natural physiologic processes have been varied. Thus, farrowing difficulties are not at all uncommon in select sows of any breed.

Veterinarians can be of service to the breeders by acquainting them with the following factors which have been found to be of importance in preventing pig losses during the farrowing season:

1. Make a record of the date of breeding.
2. Feed proper ration.
3. Proper surroundings should be maintained.
4. Pig rail should be provided.
5. Prevent pig eating.
6. Help delivery only when necessary.
7. Artificial respiration when necessary.
8. Proper disposal of afterbirth.

The date of breeding is the only true index of the time of farrowing and should be carefully recorded, in order that the sow may be prepared for the delivery of her young.

The feeding of breeding sows is far more important to successful farrowing than all other factors excepting the provision of proper surroundings. Pregnant sows should be given a good maintenance ration, but should not be fattened. Excessive fat is a common cause of difficult farrowing and is occasionally responsible for the loss of the sow. About ten days before farrowing the fat producing foods should be diminished or entirely eliminated and concentrated nitrogenous foods given, but in relatively small quantities. The entire course of feeding given during pregnancy should contain ample mineral substances and especially phosphates to supply the necessary bone ingredients for the pig and to support the skeleton of the sow. In those sections of the country where hairless pigs have been produced, iodin salts should be incorporated in the feed of the sow during pregnancy.

The sow should be placed in special quarters for farrowing about one week prior to the date of that event. The individual farrowing house or special pen in a hog house is the ideal place for farrowing. Proper arrangements must be made to overcome the extremes of weather such as low temperature or high temperature or excessive moisture. Ventilation should be provided in hog houses to insure fresh air, dryness and absence of drafts. Ample provision should be made for an abundance of sunshine, as it is an important factor to the young animals. Unless the foregoing provisions for farrowing quarters are available, the breeder can not hope to produce more than a fraction of the proper pig crop.

Unless the "A" shaped farrowing house is used, a pig rail should be provided to prevent the sow from killing the pigs.

An occasional sow is a pig eater. It is not difficult, ordinarily, to prevent sows from becoming cannibalistic. They usually are insufficiently fed, particularly on nitrogenous feeds. After a sow has formed the habit of pig eating, it may not be possible to prevent it in the future.

In some young sows and in a few older brood sows, the genital organs are abnormal or there may be a malformed pelvis which causes difficult passage or expulsion of the pig. In some instances, it is absolutely impossible for the pigs to be expelled from the uterus. It is not advisable to assist in delivery of pigs until it is positive that the sow is unable to make her own delivery. The inability of the sow to deliver is difficult to determine but generally speaking when contractions become less forcible assistance should be given. Before attempting to assist in delivery, the sow should be placed on a clean bed away from dust. When possible, the hand alone should be used. A small boy is frequently the best obstetrician for delivery of pigs, provided he is properly instructed how

to pass the hand so that the genital organs will not be injured. The use of forceps or wire is not very satisfactory. In some intensive hog breeding sections the veterinarians have provided a special room at their place of business for taking care of difficult delivery cases in sows. In these locations the breeder finding a sow that is having difficulty in delivery, loads the sow into an automobile and takes her to the veterinarian where every up-to-date equipment is available to give the best service possible. The breeders believe this is the best solution to the problem in the communities where it has been given a trial.

Some pigs when farrowed are apparently dead, but when they are examined their heart is noted to be beating and in these cases artificial respiration should be resorted to for by this means the pig can usually be saved when it would otherwise die. All pigs should be carefully examined to see that they have all of the natural openings; such as, vulva, anus, nostrils, etc. Many pigs are found to have no anus and unless one is provided in a few hours' time, the pig is certain to die. One such pig the writer has observed, which was operated upon and sold at six months of age for $1,000.00.

The after-birth should be burned or buried and under no circumstances should the sow be permitted to eat any part of it, as that may be the starting point of pig eating.

The period of estrum normally occurs in the sow every twenty-one days until she conceives. Passing of a period of estrum by a sow after breeding is the first indication of pregnancy. Mature sows and most gilts begin to fill in the flank and begin to show piggy about six weeks after conception. The period of gestation is from 112 to 120 days.

Pig Losses Due to Diseased Sows

Infection of the genital organs of the sow is relatively common. Valuable information relative to the cause and extent of uterine infection in sows can be obtained by a study at a packing plant of a series of pregnant uteri. By such an investigation it will be found that metritis is a very potent factor in diminishing pig production and in increasing pig mortality. The results of uterine infection, no doubt, depends upon the virulency of the microbian agents and the resistance of the sow. Infections of a high virulency in a sow of low resistance would probably produce abortion and a sow with a high resistance when infected with microbes of low virulency will probably carry her pigs full time but there will be a high percentage of runts and in nearly all such cases the pigs will have a low vitality.

Genital infection in sows is usually manifested by a vaginal discharge, and such animals should not be bred or at least not until the malady has been overcome.

A ton draft gelding was recently sold by an Iowa farmer for $415.00.

"Lady Purdue," one of the queens of the chicken family, owned by Purdue University, has produced 1406 eggs in nine years.

Paratyphoid dysentery in lambs is due to infection but rarely occurs excepting in those lambs that have been deprived of feed for twenty-four hours or longer.—Newsom.

During the past year, 217,000 tuberculosis reactors were condemned by federal and state authorities cooperating in tuberculosis control and eradication. The number of cattle tested was 7,000,000 and the percentage of reactors 3.1.

Fully 17 per cent of natives that have attained the age of 45 years die of cancer in Denmark. This high death rate has been attributed to diet.

It has been estimated that livestock have consumed approximately 20,000,000 board feet of potential timber in the past twenty years in the Coconino and Tusayan national forests in Arizona.

Hemorrhagic septicemia may occur in shipped-in feeding lambs within two weeks after shipping but is not common after that time.—Newsom.

That milk is a wholesome and valuable food is evidenced by the fact that physical, mental and moral progress has been more rapid in those countries where milk and other dairy products are consumed in considerable quantities.

About 11 per cent less sows farrowed in the fall of 1925 than normal; however, over 12 per cent more sows have been bred to farrow in the spring of 1926 than sows bred to farrow in the spring of 1925. It would appear as though there will be an increased pig production in 1926.

Accidents Occurring in Practice

E. T. Baker, Moscow, Idaho

About thirty years ago, while the writer was a small boy, a young physician, whom we shall call "George" for short, located in our town for practice. He had been born and raised in our community, and was highly thought of. One of his very first cases happened to be the banker's niece, a girl of about sixteen years of age, and a general favorite with all. Starting out as a simple sore throat, the disease developed into diphtheria, and soon the patient was choking to death. As a last resort, for the antitoxin had not reached its prominence then, George attempted to perform tracheotomy. In some way or other, a large blood vessel was severed, and the girl bled to death in a few minutes. Although he was the only physician in the community and for a large adjacent territory, this misfortune ruined his practice. He stuck around for nearly a year and then pulled out for the middle west, where he became a skillful surgeon and very successful in his profession.

Some years later, the writer chanced to go out with a friend to see a horse suffering with acute digestion and impaction. The veterinarian administered a seven-grain dose of barium chlorid intravenously, and before he could get the hypo back in its case, the patient had lunged forward, kicked spasmodically, and passed away without even saying goodbye!

While the writer was connected with a veterinary college, it was his misfortune to look after the dog practice. The students had found out that a thorough rectal injection was efficacious in canine distemper, so all the patients were receiving the "water cure," and getting it right. One morning, a very determined appearing, elderly maiden with a look of love untold, brought a little, sore-eyed toy cur into the hospital. She told me, with a pitiful little quaver in her voice, that if anything happened to her loved one, fatally, she would never, no never, forgive us. As she had money inversely to the amount of good looks God had squandered upon her, I warned the boys to deal gently with the flea-hound. But I was called out of the city and youth must have its fling of experimentation, and when I returned, there was crepe on Pansy's cage. It was a sad story of how we had taken special care of the dear little innocent pup. We had sat up nights listening to every beat of its palpitating heart, but medical science was of no avail, and as the minister would say in a similar instance, "the Lord giveth and the Lord taketh away." In sixteen years of practice never have we had to do such explaining and sympathizing as we did in that unfortunate canine demise.

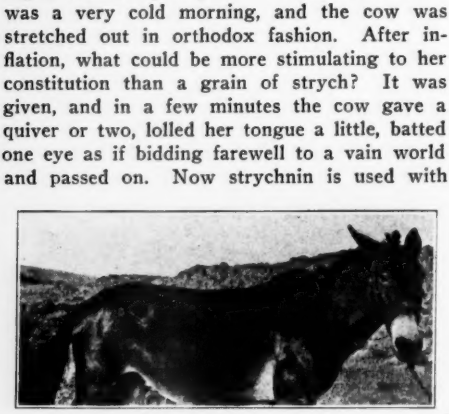
A friend of mine in the middle west drove out to one of his best paying clients one beautiful summer morning. He was to immunize over a

A "pinto" Indian pony of the Nez Perces, Idaho.

hundred little piggies, ranging from 30 to 70 pounds. They were all registered stuff and my friend had assured his client all they needed to make them thrive as pigs had never thriven before was to vaccinate them. Relying upon the veterinarian's advice, whose judgment had never failed him, he ordered it done. So they were immunized in due and ancient form, the fee paid, and all seemed well. But "mixed infection," flu or whatever you call it, came along, and out of the hundred head, in less than a

month, only about twenty remained, and they resembled the breaking up of a hard winter. The veterinarian had overlooked warning the owner against some unforeseen contingency that might happen, for that was before the days of mixed infection bacterins.

About twelve years ago the writer was treating a valuable Jersey cow for milk fever. It was a very cold morning, and the cow was stretched out in orthodox fashion. After inflation, what could be more stimulating to her constitution than a grain of strych? It was given, and in a few minutes the cow gave a quiver or two, lolled her tongue a little, batted one eye as if bidding farewell to a vain world and passed on. Now strychnin is used with



If you have anything to say to this mule, say it to his face.

good success by many practitioners in this condition, but not by this one. Atropin and camphorated oil, with DeVine's oral treatment of nux, digitalis and strophanthus constitute our backfield. And when you get a case that seems to have made up her mind to die in spite of all your strenuous efforts to the contrary, try a colic tablet number one, some adrenalin and a good, big, high rectal injection with plenty of salt in it, about as warm as restaurant soup.

Two young veterinarians, not more than a thousand miles from here, arranged to assist each other one day with several trephines, neurotomies, ridglings, etc. It was Saturday morning, and from all directions came horny-handed sons of toil leading the sick and the halt and the blind. The clinic was to be held in the little hospital one of the veterinary experts boasted of, and over a hundred curious visitors thronged the surgical amphitheatre. The first case was that of a beautiful bay gelding, with a bad third molar in the upper left arcade. The animal was cast, and chloroform administered by the visiting veterinarian. The local expert bustled around in his white suit assembling instruments, pans, gauze and antiseptics. Suddenly he gazed at the patient. He rushed to the head and whispered to give some air, but it was too late. The animal's eyes were set in glassy fashion; rigor mortis set in, and in a minute or two the patient was an absent brother. In about five minutes one could see ranchers leading their animals out of town as fast as they could ramble. It was a genuine misfortune, for such a termination occurs only in very rare cases.

A client of the writer's had a little Jersey cow that was "bound up," he said, and we were getting ready to administer a drench. As luck would have it, I was over in another part of the barn, slipping on my overalls, when I heard a gasp. The owner had tied up the head rather high, the floor was slippery, and when the cow pulled back, her emergency brakes failed to hold, and down she went. She gave a little, pitiful bellow, gasped once or twice, and was as dead as she ever will be. Had this happened about three minutes later, who would have had the credit for another funeral?

There is another class of accidents occurring to the practitioner that often cause vain regrets. Once upon a time while the writer was young and tender-hearted he was called out to inspect some horses going to Canada. The client happened to be a seedy looking Norwegian, with a large family and living in a tumble-down shack, as Dr. White would say. In fact, the whole outfit looked poverty stricken. This was very unusual, because Scandinavians as a rule, live in very thrifty, well kept homes. The man put up a sad tale of woe, and the writer being touched with pity, let him off at just half the regular fee. Imagine our surprise when we noted in the local paper a few days later where this humble looking sod-buster had sold his ranch for $36,000 cash, and had bought three sections in Canada! If some of the succeeding shippers suffered a little, God will know why and forgive.

A friend of the writer's, a mighty fine practitioner, who was kept busy keeping up his assessments on worthless mining and oil stocks, attempted to castrate a mule, standing. My friend is an expert on this operation, but the mule happened to be a little bit peevish about something or other, and even with a twitch on, lunged out at the operator before he was even touched. A compound fracture of the femur was the result, that has never healed properly, and, although it is over five years ago, the victim still has a "bum" leg, and suffers tortures with it. Personally, we lay little colty down on the grassy sod, gently if possible, but if he struggles, we lay him down just the same. As our living depends on being able to practice, why jeopardize that living to save a few min-

utes casting? If we have anything to say to a mule we say it to its face.

Dehorning bulls is another pleasant occupation to pass the time away. Why take a chance with a young Holstein gentleman cow, about two years of age, and fairly robust? A young theological student who lived near the writer and who liked to go out with us on his vacations once in a while, went along on a dehorning expedition. Arrayed in ice cream pants, white shirt and immaculate spats, he volunteered to hold down a bull's neck while we had the "critter" stretched out between two apple trees. Before we had taken a dozen strokes with a trusty saw, Mr. George W. Bull gave his body a heave, bowed his neck, and sent our ministerial friend flying through the air. A flock of geese had been loitering in that part of the orchard where our hero lit, and the soil was not what a bacteriologist would call surgically clean. As our student massaged his Palm Beach pants, just exactly what he said and what he thought would not have made much of a hit at his ordination.

The moral (if there is any) of these pathetic little tales is to be careful at all times; warn your client that the unexpected may happen and never be too optimistic, or you may be like the proud mother who boasted that her boy was the best football player in college, for, quoth she, "the paper says all the yardage was gained through him!"

KANSAS STATE AGRICULTURAL COLLEGE JAN 28 1926 LIBRARY

Poisonous Plants

L. H. Pammel, Dept. of Botany, Iowa State College

HEMP AND MEXICAN TEA OR WORMSEED

A correspondent, Prof. R. F. Crawford, sends to me from New Mexico, two specimens of plants which were thought to be injurious to live stock, and the following letter:

"We have had considerable inquiry this fall concerning a species of plant, the common name of which is Mariwana. If I am not mistaken, this plant is Cannabis sp. We had a considerable number of these suspected plants sent in for identification. I can find no published descriptions of the genus. I am sending, under separate cover, a few portions of these plants and would appreciate it very much if you would identify them for me."

The Cannabis is the common hemp (Cannabis sativa), a native to Asia but which has long been naturalized in Europe and from Europe it came to the United States. It is now a common weed throughout the northern United States. The Indian hemp from which the drug is obtained is essentially not different from the European, though it is said the drug from the European hemp is not as good as from the Indian grown plant. The bhang or hashish is smoked in India and produces very serious cerebral disturbances. The narcotic ingredient found in majun and charras is undried resin which is obtained by the natives who, when passing among plants wear rubber aprons to which the resin adheres, after which the product is scraped together. The principal constituents of hemp are resin and a volatile oil. The oil or amber colored substance has an oppressive hemp-like smell, and furnishes a resinous substance, cannabin, which crystalizes in needles and acts like strychnin. Cannabinol, with intoxicating properties, is obtained from cannabin and is a product from the glands of Cannabis. Cannabin hybrid ($C_{18}H_{28}$) is a substance with the coniinlike odor; it is antispasmodic, soporific, anodyne and a nerve stimulant. Dr. C. F. Millspaugh referring to the products of plants affording this oil concluded from experiments made, that this drug causes depression, epilepsy, vertigo, congestion, followed by cephalalgia, earache, tooth-ache, dryness of mouth, throat, lips and lids; it produces nausea, vomiting after coffee, palpitation of the heart, weakness of the limbs and dreaminess during sleep. It produces the same symptoms in animals.

The Mariwana is wormseed (Chenopodium ambrosioides), a member of the goosefoot or lamb's quarter family, a well known poisonous plant which is naturalized from tropical America and now occurs from New England to California. It is more common southward than northward. It is a glandular pubescent annual or perennial herb with a strong odor. Many experiments with animals have shown it is poisonous. I have the following comments in my Manual of Poisonous Plants:

"Several species of the genus contain volatile oils. The C. ambrosioides, var. contains the volatile oil of wormseed. This oil has a pecu-

liar, strong, offensive odor and a pungent disagreeable, but aromatic taste. It is said to contain chenopodin, $C_8H_{12}NO_2$. In the case of a man who took about one-half an ounce of a soluble oil of wormseed, Dr. Millspaugh says that the symptoms were those from a narcotic, acrid poison, affecting the brain, spinal cord and stomach. The patient was insensible, convulsed and foamed at the mouth. In another case a man who had taken a considerable quantity displayed hilarity and made futile attempts at talking like a drunken man. Death followed later. C. mexicanum contains saponin."

INJURIOUS MOLDS ON SWEET CORN

Dr. A. C. Swanson of Webster City writes the following letter:

"Under separate cover I sent you a sample of sweet corn which I wish you would examine for the presence of injurious mold. This corn is being fed to cattle. The owner is having trouble with these cattle having lost two and two more sick when I saw the herd.

"Symptoms: Blood noticed in feces, animal otherwise apparently healthy. This continues for two or three days when diarrhea develops, animal dying in two or three days. During this time animal shows severe colicky symptoms, temperature normal. I have asked the owner to discontinue the feeding of this fodder until we hear from you."

The corn and husks are very moldy, with a number of species. Among these we note Fusarium, a Cladosporium, and a number of other species. I am having our mycologist determine the species. But this mold no doubt is responsible for the trouble suggested by Dr. Swanson. There is much literature on the subject of feeding moldy corn to cattle. This has been reported on fully in my Manual of Poisonous Plants. I have also described it in the January number of Veterinary Medicine.

IS PIGWEED POISONOUS?

Dr. J. Howard Brown of Rich Square, North Carolina, writes as follows:

"Under separate cover, by parcel post, I am sending you a weed which is locally known as 'beet weed.' Will you kindly identify this weed and state if it is known to be poisonous to cows?

"A cow died after eating, probably for a week, the tops of this weed. Symptoms noted were a dullness, off-appetite, checking of milk secretion, weakness and stiffness in gait and diarrhea. Cow lived about twenty-four hours after being found sick."

The plant sent proves to be one of the pigweeds (Amaranthus hybridus). It belongs to the Amaranth family. The beet is a member of the goosefoot or lamb's quarter family. I suppose the plant sent is called beetweed because of the red color of the leaves, which are more or less purplish. It is a somewhat fleshy herb, 3 to 6 feet tall. The seeds are enclosed in somewhat spiny bracts and calyx lobes. The seed is small and blackish. This and some of the other pigweeds sometimes produce mechanical injuries. The somewhat spiny bracts may sometimes cause an impaction. There are several cases on record of injury to cattle in Nebraska of the common pigweed. It is said to cause bloat. An experiment made by Prof. O'Gara in Nebraska proved negative. The weed is often eaten by pigs and sometimes fed to them without any injurious effects.

HOBBLE BUSH, WILD RAISIN, OR BLACKHAW—THUNDERWOOD

Dr. W. W. Stephens of Fort Payne, Alabama, sends a specimen of hobble bush or blackhaw to Veterinary Medicine with the following letter:

"Please analyze the enclosed package, known here as 'thunderwood' and see if it is sufficiently poisonous to kill stock."

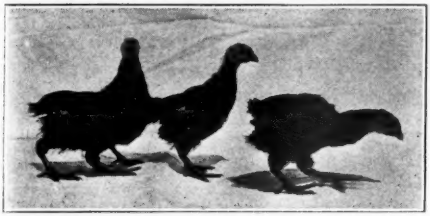
The specimen sent proved to be Viburnum nudum, one of the well known native haws which is distributed from Kentucky and Florida to Texas. Several haws are well known medicinal plants. Of these the best known is the plum-leaved haw (Viburnum prunifolium), which is a native of the southern states, extending into southern Iowa. This wild raisin has sweetish edible berries. The bark is officinal and is used as an antispasmodic, nervine and an astringent. It is also used as a uterine sedative. It contains viburnin, oxalic acid, tannic acid, saponin and several other substances. The berries are certainly not poisonous. It is possible that the leaves and bark under some conditions may be somewhat poisonous.

Fowl typhoid is more or less prevalent in all sections of the country. Chickens are very susceptible to fowl typhoid. Turkeys, guineas, pigeons, ducks and geese are only slightly susceptible and man is immune. Sparrows and pigeons may carry infection from premise to premise. The disease can be controlled by proper sanitation and vaccination.

The Effects of Velvet Bean Meal Upon the Health of Fowls

B. F. Kaupp, Raleigh, N. C.

The tropical velvet bean flourishes in all of the southern states. The vines grow to a length of from 15 to 75 feet and, if grown with corn, will cover with a dense mat a large area or if grown alone will cover the ground. The first few years velvet beans were grown, on account of difficulty encountered in harvesting the matted vines, the fields were used for grazing.



1. Single Comb Rhode Island Red chicks, 8 weeks old, fed 28% velvet bean meal with water to drink. Weight 0.91 lb. each.

The problem that always comes up is, what are the effects of a feed upon the health of the animal to which it is to be fed? Experiments have taught that some feeds are injurious and others are not. During the past eleven years the Poultry Department of the North Carolina State College has been conducting extensive experiments with the effects of various feeds upon the health of poultry. Six years have been devoted to studies with velvet bean meal and the meal made from both pods, vine, and beans. The following experiment is one of these series in which it is thought the readers of Veterinary Medicine will especially be interested:

Ground Velvet Beans Alone as a Feed for Chicks

These tests were conducted with ground velvet beans alone. We secured five bushels of velvet beans and had them ground at a small water mill, near Raleigh, so as not to take chances of having something put over on us on the market and to be sure we had just the product we wanted. Commercial fattening crates were used to prevent the birds exercising and broilers of about three to four pounds each in weight were selected for the test. The following feed mixture was used:

Corn meal.....45 pounds
Velvet bean meal.....45 pounds
Meat meal .....10 pounds

All mixtures in these tests were by weight. When this mixture was given it was fed in the proportion of one pound of the mash to two pounds buttermilk. The birds were fed morning and evening, just what they would clean up in twenty minutes, after which time the troughs were taken from the birds.

There were run six coops with the results given in the table below:

Fattening With Ground Velvet Bean Meal Mash With Buttermilk

TABLE I

No. birds in	No. birds out	Weight in	Weight out	Remarks
5	5	29.9	29.7	*One bird
6	6	19.6	20.7	died on the
6	6	19.3	21.0	third day,
6	5*	24.0	20.1	not due
6	6	16.3	17.2	to the
6	6	12.6	18.0	feed.
35	34	120.7	124.9	

We have here six parallel tests to determine if the injurious substance is in the beans or only in the pods as our work two years previous was with ground beans and pods. While the results were not so disastrous to the health of the fattening birds as it was with the fattening work two years previous where ground beans and pods were used, yet the birds came out of the fattening coops with little or no gain. In the previous tests where ground beans and pods were used there was a loss of 13 per cent, a loss of six birds by deaths and none could be sold as broilers or fryers for they were in a bad

2. Single Comb Rhode Island Red chicks, 8 weeks old, fed 28% velvet bean meal with milk to drink. Weight 1.15 lbs. each.

state of health, depressed, ruffled feathers, off feed, poor and droopy. In the present tabulation it will be seen that the results were not so bad but that they were injured by the feed as there was a gain of but three and three-tenth per cent.

The first four lots lost weight though they were in no way depressed at the end of the fourteenth day test. The balance of the lots made small gains. The control lots were given the following ration:

Corn meal .....45 pounds
Soybean meal (fat ext.).....45 pounds
Meat meal .....10 pounds

3. Single Comb Rhode Island Red chicks, 8 weeks old, control to the velvet bean meal lots. Fed no velvet bean meal. Weight 1.40 lbs. each.

Table two gives the summary of these control feeding tests:

TABLE II

No. Birds in	No. Birds out	Weight in	Weight out
5	5	29.1	30.7
6	6	18.7	21.0
6	6	18.6	21.5
6	6	20.4	22.6
6	6	15.4	18.6
6	6	12.5	17.6
35	35	114.7	132.0

These birds were fed as the test flocks, that is, a feeding of wet mash in troughs twice a day, night and morning, using one pound of the mash to two pounds buttermilk.

In the control fattening work there were six parallel tests run including a total of 35 broilers of the same size and breeds as in the first tests. Fat extracted soybean meal was used in the place of the ground velvet bean meal. The birds all came out of the 14-day fattening in good condition. There was an average gain per bird of seventeen and five-tenths per cent against three and four-tenths per cent in the first test. All lots gained weight, none losing as a result of the feed as in the case of the test with velvet bean meal. The balance of ground beans were kept over with the view of running the following year a similar test on baby chicks.

In this test two series of three flocks each were to be run. The first was to receive velvet bean meal mixed with water and water to drink. A control was run. In this ration wheat middlings was used in the place of the ground velvet beans. This flock at feeding was to receive its mash mixture wet with water and the chicks to receive water to drink. The following are the two mashes:

Velvet Bean Meal Mixture

Corn meal .....28 pounds
Velvet bean meal.....28 pounds
Pulverized oats .....28 pounds
Meat meal .....16 pounds

Mash Control to Velvet Bean Meal

Corn meal .....28 pounds
Wheat middlings .....28 pounds
Ground oats .....28 pounds
Meat meal .....16 pounds

Tables III, IV, and V give the weekly individual weights per chick, also the mortality of each flock.

TABLE III

Weight of Chicks and Mortality Each Period Velvet bean meal-water lot.

No. Chicks	Age	Flock Wt.	Av. Wt. Chick
18	Hatch	1.4	0.08
18	7 da.	2.2	0.12
18	14 da.	2.2	0.12
18	21 da.	3.5	0.19
17	28 da.	4.5	0.26
16	35 da.	5.5	0.34
12	42 da.	6.2	0 52
10	49 da.	7.2	0.72
10	56 da.	9.1	0.91

We note that the mortality was 45 per cent and that the weight per chick at the end of the eight weeks was 0.91 pound. This is a heavy mortality when it is taken into consideration that these chicks were hatched and reared by a hen. Ground velvet bean even in 28 per cent to chicks in their first eight weeks cannot be recommended.

We observe that when milk is added to the velvet bean meal ration and the chicks are given milk to drink, the death rate is less and that the chicks grow larger in the same length of time. We notice that these birds receiving the velvet bean meal with milk weigh, as an average, 1.15 pounds each at the end of eight weeks, whereas, those chicks that did not receive milk averaged only 0.91 pound each. In

all these chick tests throughout the chick year's work, the birds were Single Comb Rhode Island Reds and the eggs and sitting and brooding hens were all from the same flock.

TABLE IV

Weight of Chicks and Mortality Each Period Velvet Bean Meal Milk Lot.

No. Chicks	Age	Flock Wt.	Av. Wt. Chick
20	Hatching	1.6	0.08
20	7 da.	2.2	0.11
20	14 da.	2.9	0.14
19	21 da.	4.2	0.22
17	28 da.	6.3	0.37
16	35 da.	8.2	0.51
16	42 da.	12.0	0.75
16	49 da.	15.2	0.95
16	56 da.	18.5	1.15

The following tabulation gives the results of the controls where the velvet bean meal in the ration was replaced with an equal amount of wheat middlings.

Wheat middlings was selected in these tests as a substitute for the ground velvet bean meal because it will provide about the same amount of vegetable protein as the ground velvet beans.

The mortality in this class was 44 per cent, which was excessive. It was only 20 per cent in the case of the velvet-bean-meal-milk flock.

TABLE V

Weight of Chicks and Mortality Each Period of the Control Chicks to the Velvet Bean Meal.

No. Chicks	Age	Flock Wt.	Av. Wt. Chick
18	Hatching	1.8	0.08
18	7 da.	2.5	0.11
15	14 da.	2.9	0.19
13	21 da.	4.2	0.32
12	28 da.	5.7	0.47
12	35 da.	8.0	0.60
12	42 da.	10.6	0.88
12	49 da.	13 8	1.06
12	56 da.	16.8	1.40

Study carefully these tables and you will see the effect upon the health and growth of the chick due to the velvet bean meal as you go from velvet bean meal and water, to velvet bean meal and milk, to the control where no velvet bean meal is given. The effects upon the general health of the bird is shown by the weights at each period they were weighed. Milk partially overcomes the ill effects though not entirely as shown by the weights. These Rhode Island Reds averaged 1.40 pounds each at the end of eight weeks in the case of the controls while those that received the 28 per cent velvet bean meal and milk averaged at the end of that time but 1.15 pounds each, and those that received velvet bean meal and water averaged 0.91 pound each at the end of eight weeks or less than one pound.

SUNLIGHT

Sunlight is known to be an effective disinfectant, therefore, stables so constructed as to receive the greatest amount of sunlight possible, are well constructed. However, we should not depend too much on sunlight as a means of disinfection. There are places in all stables that sun rays do not reach and it is necessary to use other methods of disinfection where disease producing bacteria exist. This cannot be practiced too frequently nor too thoroughly. We should always aim to use a good, reliable and effective disinfectant.—Bulletin No. 404, Penna. Department of Agriculture.

The periodicity of disease is no new theory and is exemplified by the well known cyclical character of influenza. The history of epidemics shows also that they have a tendency to stamp their peculiar features upon the more resistant individual. When diphtheria or scarlet fever is prevalent, non-specific sore throat is common; when typhoid is epidemic, non-specific enteritis increases. It would seem then that in these cases the toxicity of the bacillus appears to be diminished, possibly by the individual generating an antitoxin which prevents specific infection but does not hinder the irritation of these various mucosa for which the bacillus shows its predilection. The elective habit of the bacillus is not understood. Why does diphtheria attack the tonsils? Why does typhoid the intestines? Other questions which are closely related are the relationship and the antagonism of bacillus. The bacillus of influenza is suspected to be concerned in the production of the syndrome known as encephalitis lethargica and also of epidemic hiccough.—Pharmacal Advance.

So long as our patients defecate, as it were, on their dinner plates, we shall have serious parasitic diseases with which to deal. Here, undoubtedly, we may apply the American slogan which I attribute to Hall, "Permanent pastures perpetuate parasites."—A. W. Noel Pillers in The Veterinary Record.

Urethral Obstruction in the Cat

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The male cat is peculiarly susceptible to retentio urinae arising usually from mechanical obstruction of the urethra. By far the commonest obstruction is that caused by a sabulous material, and in more rare instances, by the presence of cystic or urethral calculi.

Symptoms

When a subject of this abnormality is first presented for examination, the history usually is that the animal had for the past twelve to twenty-four hours appeared very restless and uneasy; that it had occasionally plaintively mewed, swished its tail, refused food, appeared to avoid lying down, and preferred to maintain a crouching posture with the back arched. From observing the cat straining, the owner concludes that it is constipated. Whilst, at first, such cats will wander aimlessly about, hide under furniture and appear anxious, they later avoid all movement as far as possible, except perhaps the angry swishing of the tail. They are often observed straining to pass urine, sometimes without any success, and at others managing to void a few drops only. Inquiry will occasionally elicit the fact that no urine whatever has been passed by the animal for several days. The patient becomes dejected and miserable and resents any manipulation of the abdomen. This in itself is sufficient indication of the seat of the trouble, and palpation will disclose the presence of a very large, tense, ovoid body occupying the greater part of the abdominal cavity.

Owing to its great size and firmness, a person inexperienced with the condition might be led to believe he was feeling a tumor or abscess, and, unless he changed his diagnosis, might proceed to perform laparotomy for its removal. After two or three days of acute pain have been endured without relief, the animal looks haggard and worn out, becomes emaciated and weak, coat stares, eyes recede, and a comatose condition ensues, soon to end fatally from toxemia, unless energetic measures are adopted.

Treatment

1. Pressure from without. The cause of the retention must be ascertained and removed without any delay. In the first instance, effort should be made to empty the bladder by exerting gentle pressure upon it through the walls of the abdomen. This will result in a bead of urine appearing at the preputial opening, carrying with it, perhaps, some obstructing sabulous deposit. The assistance thus afforded the cat in expelling such a plug may possibly be all that is required, as once the obstruction is removed, the urine will flow away normally.

2. Manipulation of the urethra. In other cases this procedure fails entirely to dislodge any obstruction or facilitate the escape of urine. The prepuce must then be drawn down to expose the penis, and the latter organ be gently compressed between greased or wetted thumb and finger. In this way sometimes casts of cheesy matter may be squeezed out through the urethral orifices, and the passage cleared. In the majority of cases it certainly seems to be the penial portion of the urethra which becomes occluded, and this may perhaps be explained by the frequent presence of a penial bone and also by the fact that this portion of the urethra is the narrowest in lumen and the least dilatable.

3. Catheterization. Not infrequently it is found desirable to pass a catheter to serve the treble purpose of dislodging obstructions, drawing off the urine, and flushing out the bladder. The passage of a catheter in a cat is a task of peculiar difficulty to those who are not conversant with feline practice. The female cat often presents the greatest difficulty owing to the operator's inability to locate the urethral orifice. In the male cat there is not quite the same impediment, provided one is possessed of a suitable instrument. None of the gum-elastic or rubber catheters, as made for canine patients, is of any use, as the smallest size seems to be much too big for the male cat. Gray's cat catheter is, however, splendidly successful, and by its use all difficulty (so far as the male is concerned) is banished. This instrument is a straight silver tube about six inches in length, and has a silver stilette. The practitioner who resides many miles from any maker of surgical instruments is well advised to equip himself with Gray's catheter if he contemplates feline practice.

For catheterization, having regard to the nervousness and sometimes refractory behavior of the cat, and the tenderness likely to be present, the writer always prefers to fasten his patients upon an operating table. It is sometimes desirable to anesthetize. The male cat is placed

in a dorsal position, hind legs wide apart; the prepuce is pushed downwards with thumb and first finger of the left hand to expose the penis. The sterile catheter (warmed, lubricated, and with its stilette) is then inserted into the urethral orifice, which is, of course, at the very end of the pointed penis. The point of the catheter, having entered the penial urethra, is now directed downwards (towards the table) and slightly backwards. Gentle pressure is then exerted upon the instrument until the soft resistance caused by the curvature at the perineal arch is felt, when the point is directed towards the animal's head, the catheter being then almost horizontal with the floor of the pelvis. No force should be exerted at any time or there will be a possibility of puncturing the urethra or bladder.

The female cat is perhaps more advantageously placed when secured in an abdominal or upright posture, since the urethral orifice is upon the floor of the vagina. The latter is generally so very small that the use of a speculum for locating the meatus is impossible; but by gently sliding the point of the catheter in a forward and slightly downward direction along the centre of the vaginal floor, the instrument will be found to continue without resistance when the point has entered the urethra. The orifice of the latter is actually situated about three-sixteenths to one-fourth inch posteriorly to the os uteri. If the urethra is missed it is quite easy to direct the catheter into the os, although such a mistake would soon be discovered. When the instrument is properly in the bladder, one can detect its movement through the abdominal wall.

4. Bladder Puncture. In the event of failure by any of the above methods to shift the obstruction, one has still other expedients to fall back upon. The bladder can, for instance, be evacuated by inserting a trocar and cannula into its lumen from without the abdominal wall. A spot is chosen in the linea alba, close to the brim of the pelvis, so that it is as nearly as possible the neck of the bladder which is punctured. The area is shaved and disinfected, a trocar of fine bore selected and boiled, and then inserted for a short distance beneath the skin before directing its point down through the abdominal wall into the bladder. The relief afforded by this operation is immediate, and often, the removal of pressure upon an obstruction will permit it to move and perhaps even pass out with the next outflow of urine.

No very great risk is run provided that surgical asepsis is observed and if any serious difficulty is experienced in the passage of a catheter, bladder puncture is advised. It can be repeated several times if necessary, but experience has proved that once the muscles have been relieved of tension and have regained their tone, together with the shifting or breaking up of the obstructive mass, the cat begins to micturate voluntarily.

5. Urethrotomy. Cases will occasionally be presented which would appear to be most successfully dealt with by performing urethrotomy. Injuries or swellings of the penis, inability to pass a catheter or clear the urethral passage, or the presence of a urethral calculus, are contingencies which might lead the surgeon to this conclusion.

Urethrotomy is undoubtedly a difficult proposition in cats owing to the exceedingly small size of the urethra, but it has on many occasions been performed with success. The site of the incision is just above the scrotum (when the cat is standing in the normal position); if the animal is already neutered, the incision may be made through the scrotum. The cat is fastened to the operating table in a dorsal position and chloroformed. Having denuded the region of hair by shaving, the terminal inch of the penis is pinched up between index finger and thumb of the left hand, so that it stands out like a piece of thick string. The overlying structures are then very carefully incised longitudinally until the urethra is reached. This is just punctured with the point of a scalpel, and a silver probe introduced. When it is ascertained that the hole made is sufficiently large and in the correct position, a catheter may be passed in either direction, and all obstruction cleared. Great care must be taken to avoid cutting the penis, and for so delicate a task the cat must be thoroughly anesthetized and the operator devoid of haste or impatience. Where surgical cleanliness has been observed, the wounds will rapidly heal, and no sutures are required. The writer's last case was satisfactorily healed in three days.

Anti-rachitic properties in cows' milk are in part due to exposure of the cow to sunlight.

Dead birds should never be carelessly disposed of. They should always be burned, and the same measure should be applied to the offal of poultry killed for table use.—L. Van Es.

Vaginal Prolapse and Uterine Inversion

O. V. C. '94

A cow that had one month of her period of pregnancy yet to serve was noticed to have what at first glance might be taken for the water bag that usually precedes the coming of the calf, protruding from the vulva. When after allowing this condition to continue for several days it became apparent to the owner that the tumor-like object was not fetal envelopes, a veterinarian was called.

Examination showed that the fetal feet, which were capable of movement and under control of the fetus, had moved backward striking the fundus of the bladder, inverting that organ which carried back with it the floor of the vagina to form the outer covering of the protruding object that overhung the inferior commissure of the vulva.

The bladder was emptied by catheter to simplify replacement after the exposed mucous membrane was cleansed and a bland ointment applied. By gentle pressure from the hand replacement was accomplished and the parts held in position and massaged gently to aid and allow time for the congestion of the tissues to recede. The owner was informed that the condition was likely to occur again on account of the action of the fetus, and he was instructed how to replace the parts. The cow was to be tied in a stall where the floor was level, to be given warm drink and a light diet and the parts were to be replaced at the time of labor to allow the calf to pass over without injuring the bladder.

After a week of taking care of the case, the owner insisted on the veterinarian operating on the cow to relieve her of the calf. The owner was advised that he could save money by having the butcher take care of the case, as then only one visit would be necessary to bring in the hide. Since the veterinarian would not accept the call, a handy man on pigs was employed, who after trying for a day, gave up the job as impossible. When the time came both cow and calf passed the ordeal all right.

Since then cases like the above have appeared where from two to four strong men or one veterinarian armed with proper instruments and medicinal agents have succeeded in breaking down the sealed gate, but woe be unto them. As a rule all they have to show for their skill is a dead cow.

Not to be worried by such cases in the future, it was thought best that thereafter several strong sutures be taken so as to close the vulva. It got to be a case where right is wrong and wrong is right. During the years that followed sutures were used in all cases of this kind if it appeared that the straining was not too severe.

There used to be a ring (a pessary) that could be fitted in the vagina, that might be serviceable in some of those cases. The pessaries came in assorted sizes and were shaped like the figure "0", conforming to the pelvic arch. When folded the pessary resembled one-half of the figure "0". When placed in position it became a lazy "0". The pessary was folded and placed anterior to the pelvic arch, then on being opened would retain its position with the cervix uteri floating in the iron collar. The pessary had to be removed before labor commenced. No two of those cases were found to be alike. In some the vagina being of a small diameter exerted sufficient pressure to form the displaced part into what felt to be a roll of flesh from two to three inches in diameter. In those cases the parts were replaced, gently massaged and the outlet closed by sutures to be removed after five or six days and proper care of the animal recommended.

In one case where the protruding mass was fairly large an attempt was made to improve on the foregoing treatment by giving chloral hydrate grams, lx, to allay cramps if any did return. Report from this case was: "You were not gone very long when she commenced straining and the stitches gave way, the thing burst and the intestines came out, so I had to kill her." The chloral hydrate soothed the pain of self-destruction.

A case appeared in the form of an old pure-bred Hereford cow, valuable as a breeder. The calf had been delivered six days before. The cervix uteri was closed and protruded from the vulva, its petals congested giving the appearance of a red peony in full bloom, and about ten inches of the rectum had prolapsed. The straining was severe on account of the

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condition of the rectum, which is an organ very sensitive to injury other than heat. It was not reasonable to think that sutures would hold, but something had to be done. We don't always have what we want, so must reach out and take what we think is the next best. The ⅜-inch x 3-foot, 10-inch end gate bolt with a ring on one end and a thread on the other was removed from a wagon box. A nut was found to fit the threaded end. This piece of iron was shaped by hand to form the outline of a great spoon. The ring and nut ends running parallel to each other about two inches apart formed the handle. Measuring from end to end the middle of the iron formed the bill of the spoon. A rope girdle was placed anterior and close up to the external angle of the ilium. The parts were replaced and kept in position while the pessary was applied. The bill of the spoon-shaped pessary was adjusted to a position anterior to and one inch inferior to the os pubis. The congested cervix uteri was then floating in the roomy ring-shaped bowl of the pessary. The ring and nut of the handle were one on each side of the caudal appendage. Light ropes were run from the nut on one side and the ring on the other, forward over the back and fastened fairly tight to the rope girdle at the anterior border of the ilium. The pessary rode like a boat on placid water. The rectum remained in place without further care. The straining ceased. On inquiring of the owner some years later as to what he did with that end gate bolt, the veterinarian was informed that he had it yet and since that time he saved another cow with it. This appliance would be of no use where the os uteri was very much dilated. It was used on a pre-parturient case successfully for ten days. Then the hour came when it had to be removed. After the delivery of the calf the dilation of the os uteri rendered the appliance useless. The cow died. The calf lived.

Prolapse of the vagina in the bovine may be due to a variety of causes. It is frequently met with in herds where famine is present. A run-down condition may play an important part as a predisposing cause. A large quantity of cold water consumed at one time was considered to be a test for advanced pregnancy in the equine, years ago. It might yet be sufficient to start a full grown calf to plunging. An owner having a case of this kind under treatment was advised to sell the animal when conditions were right. Years later the same animal needed care for the same trouble. On being asked why he had not sold the animal, he said, "She is a good cow. This will be the sixth calf since she had this trouble before."

One afternoon in the early spring time, as a young veterinarian was out in the backyard applying a buck saw to some rough pole wood, trying to adjust the wood to a condition that would allow it to be peacefully laid in the fire box of a cook stove, a foam flecked steed guided by a rider, came up the muddy alley and halted at the wood pile. The rider announced that the veterinarian was wanted at once about six miles out to do something for a mare that they had taken a colt from, and that the other parts came out too. The rider was asked if the mare was down. He answered "No. She is up running around in the barn and they cannot do anything for her." The veterinarian instructed the rider to return home and if the mare was alive on his arrival, to tell the owner to have her put out of her misery, and that he was not going out.

The veterinarian went back to the buck saw with a feeling somewhat like that which came over him when as a boy he saw the fish he didn't catch swim away with a spear mark on its back. He wanted the business for it was only that morning that he talked the landlord into waiting till the last of the month for the rent. This matter of rent and wood sawing is not a pleasant memory, but it really is coined gold. Yet it would not have been mentioned only some might think he was either lazy or rich. He would gladly have left the wood sawing to Magnus Johnson or any other U. S. senator, for never in his life did he take kindly to it. Then why not accept the call? Why not go out and collect? Nothing could be done for the mare after the parts were torn. Too much of this kind of collecting had been done by those who preceded him.

He thought of the dear old professor, who was always cautious. "Ah,! gentlemen, it is far better to leave it alone." He did not want that we should go out into the world from his institution, a tribe of migratory butchers. Soon his philosophizing was interrupted by the arrival of another rider who informed him that he need not go out, as the mare was dead.

A great many fishes were afterward caught in the net that was then being so carefully spread that those cases should be kept under control. Keep the animal down and no harm can be done except by straining.

Reduction of inversion uteri equina is accomplished with less difficulty than is the same

condition in the bovine. The wall of the equine uterus is not studded with cotyledons which increase the bulk to be replaced, and the equine pelvis is as a rule more roomy. The bovine is more easy to control. Otherwise the conditions are very much the same. Cases will be found in the bovine subject where the owner or some knowing neighbor pushed the organ forward into the vagina and kept it there until too much hardened to be turned without being torn, and sometimes it is allowed to remain out too long when it becomes in the same condition. Again it is allowed to be trampled on by other stock running loose in the barn. One case was found where the pigs had completely removed the part and swept up the scraps and threads. As the late Jean Stratton Porter so truthfully wrote in her "Laddie": "Pigs are the only things that are named right." In some cases it will appear that the displaced organ is more distended than usual. If examined carefully it will be found that the increase in size is due to the fact that the cornu in turning pinched a piece of intestine and carried it with it, and when once outside the pelvic cavity the vermicular motion of the intestine was again set up and the disemboweling continued while there was room.

In reduction of inversion uteri equina, the recumbent position is required if control of the animal is expected. In the bovine the standing posture is preferred as it lessens the power to strain and allows the operator more freedom of action and greater opportunity to apply his power. Sufficient control is obtained in the bovine by tying a stout piece of rope around the neck or horns, then a half hitch around the head half way between the eyes and nostrils, and then to a post in a corner of the stall. When the part is in condition to be replaced, it is well to see that the organ is top side up, free from torsion, and the body of the uterus may be drawn backward to straighten it out and insure that it is not doubled up in the pelvis. Each cornu is turned into itself, beginning at the apex, with the closed fist pushing slowly forward as far as possible without tearing the part. The hand is then withdrawn until it reaches the bifurcation. This is a good place to rest the hand with the fingers in one horn and the thumb in the other. Remember that you were not to blame for the condition, so take your time. There is nothing to do but to hold what you have, and do not push too hard. Assistants may be of use by pressing on the fleshy ring which encircles the arm, with the palm of the hands if they can do so without getting in the way. Sooner or later the body of the uterus moves forward into place. Straighten it out with the hand which is afterward slowly withdrawn and applied with pressure to the external parts for a few minutes. It generally stays in place, but in the bovine if the parts are fat and flabby, it may be well to suture the vulva. In the mare it is sometimes found that only one horn is involved. Examination will show that the horn has turned in and is resting in the body of the uterus. If replacement is attempted in a case of this kind within a reasonable time after parturition, it is almost certain to be successful, but those cases are usually found too late. Where the intestines are involved in the inversion, this condition must be corrected before replacement of the uterus is attempted. The replacement of the intestines may be accomplished by using the rectum as a glove on one hand with which the intestines may be grasped and pulled toward their natural position as far as the improvised glove will allow. Pressure from the outside with the other hand will hold the intestines where you drop them while you take a shorter hold with the gloved hand.

Since the expulsion of the fetus is one of the important functions of the uterus and is not under control of the will, the action being set in motion by natural law, continues on to success or failure. If the expulsion is successful the contractions must be forceful. The cornu in its contractions may accidentally turn in at the osteum uterinum and soon the entire cornu is involved. This is noticed when removing equine fetal envelopes. Sometimes a little pull on the afterbirth starts the cornu to turn and in a few seconds the entire horn has turned into and rests in the body of the uterus. This cornu may be turned back to normal position then without much effort, and the removal of the envelopes continue as if nothing had happened.

It would not be fair to dumb animals to place under the head of accidental those cases to which weights (bricks, stones, blocks of wood, and sometimes a man) are attached. Pulling on the fetal envelopes causes 50% of the uterine inversions. The other 50% are the result of not having a veterinarian attend the animal during labor, who would see that the parts were placed in normal position after travail. We have never heard of a case of uterine inversion where a veterinarian was in attendance, but have seen a few cases where

inversion would have occurred if no one was there to correct the turning of the part before it had gone too far.

To illustrate the power of endurance shown by some animals and the easy accomplishment of replacement in some cases of inversion uteri, a few will be cited. On answering a call fourteen miles out, making the trip by driving a single horse, it was found to be a case of inversion uteri equina. The animal was down and resting comfortably. Only two frail men were there to assist. One of those men, the owner, was sent for more help. After the owner had started for the help it was discovered that he would have to walk and it would be hours before he and the supposed needed help arrived. The man who remained was asked if he thought he would be able to keep the animal down by kneeling on her neck and pulling up her nose from the floor. He said that he thought he could do it, but was afraid that the colt which was lying at the head if its dam would kick him. He had to be shown that a colt of that age could do no harm by kicking as it had cushions on its feet. After being convinced that he would be perfectly safe, he accepted the position. The displaced parts had been spread out on a piece of canvas and were as clean as we thought necessary. The operator could not resist the temptation of trying to replace the parts without waiting for help. The parts were gently turned in without force from the operator or resistance from the dam. The mystery of this case was that the owner had at first called a veterinarian, whose office was some five miles nearer, and who had advised that nothing could be done for the animal. The owner was met accidentally a month later and wanted to know what he had best do with that mare. He was advised to breed her and that it was not her fault that the womb came out.

One early morning in June, on answering a call ten miles out, the owner appeared in the door to say that he had not had his breakfast yet, but the heifer was down in the pasture near the sawdust pile and he would be ready in a few minutes. Not to waste time and to show the farmer that one of those town fellows could be of use occasionally, the veterinarian started for the sawdust pile thinking of making a survey of conditions and see if the case could be cared for down there. When he arrived within about ten rods of the sawdust pile he was noticed by the heifer which lost no time in getting to a standing position. One look at the stranger and she started on a run for the barn about forty rods distant, with the uterus completely everted, waving behind her, a red flag-like object between earth and sky, sometimes almost touching the ground and again high in the air. There was danger of the part being torn off in the flight. She entered the yard. The owner had finished his breakfast and was there to close the gate. From the yard to the barn she went. It was necessary to throw a loop over her head and half strangle her before tying to the manger. Well, this reminds me of that old recipe for cooking a goose—first get your goose. The operation was easy and successful. It seemed that the shaking and excitement had kept down the congestion of the part.

Single injection of prophylactic rabies vaccine is effective in protecting dogs against infection from the same strain of virus that was used in the production of the vaccine. However, it has been found that there are different strains of rabies virus in the United States and a stock vaccine may not protect in all cases.

By a series of experiments Beach and Davis of California apparently demonstrated that chicks were afforded a degree of protection against coccidial infection by the use of two one-gram doses of lactose daily or by continuous feeding a mash of 20 per cent lactose or 40 per cent dry skim milk.

A streptococcus has been identified by Evans of the United States Hygienic Laboratory that produces sleeping sickness. This streptococcus varies in size from a micro-organism easily visible by use of an ordinary microscope to a size that will pass through the finest filters yet devised. It was isolated from the brain of a patient that died of sleeping sickness and has been successfully passed through a series of 17 rabbits, all of which manifested symptoms of sleeping sickness prior to death. The form of sleeping sickness produced by this streptococcus is clinically similar to but etiologically different from the type that occurs in Africa. There have been over 1000 cases of sleeping sickness reported in the United States, and it is possible that Evans has identified the causative factor.

Notes on a Veterinarian's Trip to Denmark and Sweden*

H. W. Steele-Bodger, M. R. C. V. S., Tamworth, England

All our party were members of the Dick College, and we all, in our insular prejudice, imagined that our Alma mater was the finest and best-equipped college in existence. That was before we went to Copenhagen. This college, which is state owned, covers a vast area of ground, and several of the departments are themselves bigger than the new Dick College.

It is to Professor Folmer Nielsen that we are most indebted for making our sojourn in Copenhagen the success it was, for it was he who planned everything and gave up to us all his spare time, introduced us to the various professors and took us round farms, etc. We also owe to him a debt of gratitude for the very masterly address on sterility which he gave us one Saturday night, and which lasted from 7:30 until 11 o'clock.

Professor Nielsen is himself in charge of the Obstetric Department and small animals outpatient clinic, in which we saw him perform a cesarean operation on a bitch by the flank, and also set a fractured tibia by wiring the bone. An extensive addition to the Obstetric Department is nearing completion.

Undoubtedly the finest part of the whole college is the new Pathology Department, which is under the direction of Professor Folger. It is really palatial. It cost £50,000 to build and over £25,000 to equip.

A whole book could be written about this department, which lacks nothing; a number of dressing rooms and shower baths are provided; the post-mortem theatre is like a marble palace with glass walls and a glass roof.

The Pathological Museum, I should imagine, is the finest in existence, the specimens numbering many thousands; each specimen is perfectly mounted in a glass case containing preservative. There is a special staff employed in the basement of this department, who do nothing but preserve and mount the specimens. All specimens are so treated that they retain their natural color.

Every specimen is numbered, catalogued, and grouped, firstly under general pathological diseases such inflammations, neoplasms, etc., and secondly under regional pathology, such as diseases of the liver, lungs, etc., so that reference is greatly facilitated. For specimens which are too large to be mounted in glass cases there are huge preserving tanks in the basement.

Cooling and refrigerating chambers are also in the basement.

The Lecture Room is on a par with the rest of the department. It is lighted by fourteen windows, and has a roll-up screen behind the professor's desk for lantern work. At the back of the room is a huge lantern which is so constructed that it can be used for reflecting upon the screen large fresh or preserved specimens, pathological slides or smears.

If, in the middle of a lecture, it is desired to make use of the screen, the lecturer moves a switch under his desk and the screen and the blinds of the fourteen windows descend automatically.

The Department of Medicine, under Professor Bang (Junior) is very extensive and includes stables and loose boxes of its own, together with an exercising and colic box, which is nearly of the dimensions of a riding school.

The Department of Bacteriology and Milk, under Doctor Christiansen, is also extensive and wonderfully equipped.

The Department of Zootechny and Hygiene, under Professor Yespersen, is also particularly well equipped. This gentleman is particularly proud of his collection of riding and driving bits, and spurs, which is representative of all countries; he has also what is claimed to be the largest and finest collection of wool in the world. Professor Yespersen is the only member of the professional staff who does not speak English (most of the others speak it fluently), but to compensate for this disability he speaks French, German and Spanish.

Professor Grunthe is in charge of the Farriery School. The Shoeing Forge contains twelve fires; in addition to the students having a practical course in farriery, shoeing smiths, after taking their course, are granted a diploma if they successfully pass an examination.

An innovation here which interested us greatly was a cork pad, which is used in Copen-

* The Veterinary Record, London, Eng., December 19, 1925.

hagen instead of rubber and other non-skid pads, and this is claimed to be highly successful. The cork is boiled or steamed whilst the shoe is being made; it is then cut to size, and after the shoe has been applied, the pad, which is now soft, is fitted on so that it covers the whole sole, being retained in position by notches cut into the inner margin of the shoe whilst it is being made. Professor Grunthe has a collection of horse shoes, both army and civilian, representative of all ages and all nations; the shoes number about 1,400.

Professor Hansen is in charge of the small animals' clinic, also of the pharmacy, and he showed us a wonderful collection of plants poisonous to livestock.

The Professor of Surgery, Professor Morkeberg, was exceptionally kind and we spent many pleasant hours with him, and witnessed a number of his operations. Professor Morkeberg never wastes time using interrupted sutures; all muscle sutures are continuous wire sutures, and we understand this is general throughout Denmark; for skin sutures the professor always uses pins.

A large addition to the surgery department is nearing completion.

Professor Morkeberg has what we all envy him, namely, a man who thoroughly understands restraint of animals, and he gave us several demonstrations in methods of casting and tying, which we greatly appreciate, for undoubtedly nothing is so irritating to an operator as to have an animal not under proper restraint. I think this man had a different method of restraint for every conceivable operation and position.

The College Library contains 42,000 volumes, and includes books on veterinary subjects, agriculture and forestry, in many languages, as well as the weekly and monthly scientific journals of most countries. The library is open to the public and every week dozens of books are sent by post to all parts of the country.

The professors nearly all live in charming houses within the college grounds.

We were indebted to Professor Morkeberg for taking us over the premises of the Copenhagen Milk Supply, of which concern he is the veterinary supervisor. This is one of the largest and most up-to-date dairies in Copenhagen and employs 800 men and women. The whole place is absolutely spotless, and water flows continuously down the white tiled walls and white enamelled brick floors. Every employee is clad in white overalls, cap, and wooden clogs. There is a laundry attached to the dairy.

This dairy deals with 24,000 gallons of milk a day, of which 10,000 gallons are bottled.

No less than nine different grades of bottled milk leave this factory. 3.6 per cent. of this is "children's milk," which is from 500 tubercle-free cows, the bacterial content of this milk must not exceed 10,000 bacilli per c.c. and the milk must be brine cooled on the farm. This milk, after being bottled, is capped with a metal cap.

Other grades are—best quality cream, second quality cream, Jersey milk, sweet milk, pasteurized whole milk, pasteurized half-skimmed milk, pasteurized skimmed milk, and raw buttermilk.

Thirty per cent. to 40 per cent. of the milk is pasteurized.

Trained bacteriologists examine samples of every farmer's milk as it comes into the dairy.

All the bottle-washing and bottle-filling plants are of the latest type, the latter are able to deal with 3,500 bottles an hour.

One day we were taken by Professor Nielsen over the home farm of Th. Madsen-Mygdal, Esq., the former Minister of Agriculture for Denmark. He has a tubercle-free herd of nearly 300 cows, and he bottles all his own milk, which is "children's milk." After having a free herd for many years this gentleman bought some Jersey cows which were from a supposedly free herd; when next his cows were tested a whole lot of them reacted, including a number of the Jerseys, and it took him three years to get free again.

We also visited another large farm belonging to a very up-to-date farmer. In 1921 this farmer had his herd of 183 animals tested for tuberculosis; 91 passed and 92 failed. The reactors were put on a separate farm. In 1922, 108 animals were tested; 10 reacted, all of which were old cows. In 1923, there were 3 reactors, in 1924 there were no reactors. This year there were 3 reactors, possibly due to the fact that foot-and-mouth disease broke out between the last two tests, weakening the animals' constitutions, and enabling traces of tuberculosis to develop.

Professor Nielsen says that he has frequently noticed that the incidence of foot-and-mouth disease coincides with the rise in the number of reactors on a farm.

This farmer has had foot-and-mouth disease every three years for the last twelve years. During these outbreaks many calves die, all milk goes and in some cases does not return,

and many cows abort; the whole herd is infected in four days.

This farmer has had abortion for ten years, the number of abortors fluctuating each year. He had thirty cases the year before last, these were all vaccinated and six of them aborted again last year.

The cows are all tethered out-of-doors from 1st June to 1st October. They are milked three times a day, at 4 a.m., 10 a.m., and 5 p.m.; moved six times a day, before and after each milking, and watered five times a day.

The three milkers who have charge of these cows are paid according to milk yield.

Two carts, each with two churns and a bucket of water, soap and towel are taken to the field, the men's hands are washed between the milking of each cow and the carts take the milk back to the dairy, where it is brine-cooled.

The keynotes of Danish success are organization and co-operation, which manifested themselves everywhere we went. They were particularly well demonstrated at the Gifion Factory at Frederikssund, which is a farmers' co-operative concern, and here vast numbers of eggs and pigs are dealt with.

Lorries collect the eggs daily, and each egg bears the number of the member and the date of laying. The eggs are first graded. A number of perforated trays are placed on a table, and each tray has a different sized hole, into which the eggs are placed. The trays each hold 120 eggs and are numbered 14, 15, 16, 17 and 18, which means that 120 eggs placed in number 14 tray weigh 14 lbs., 120 eggs placed in number 15 tray weigh 15 lbs. and so on for the five trays.

The women employed on this work develop such a keen touch that they know immediately they handle an egg which perforation it will fit whereas, to an on-looker, though it is fairly easy to observe the difference between a number 14 and a number 18, the intermediate grades are very deceptive.

When graded, each tray is placed in a dark chamber, and the light from powerful electric lamps is reflected below the tray so that every egg becomes transparent, and a glance is sufficient to reveal a bad egg; in fact, so clear and uniform are the fresh eggs that one's gaze is immediately drawn to the bad egg, which appears black. The bad eggs are, of course, withdrawn, and the number and date being recorded, they are debited to the members' account.

The fresh eggs are then either packed in boxes, each box containing 1,440 eggs, and these exported, chiefly to the United Kingdom; or they are preserved in huge concrete tanks containing lime water. These latter eggs are already sold before they are preserved, the buyer taking the risk of the variation in the market price, while the factory takes the risk of the rate of exchange. When the eggs are removed from the preserving tanks they are washed and again subjected to examination by electric light.

The pigs are sent to the same factory by the members. After fasting, the pigs are driven half a dozen at a time into a sty where a hefty Dane secures each one in turn by the right hind leg, slings a chain round the leg and hooks it on to a rung of a moving ladder, which hoists the pig from the ground and carries it over a huge blood tank; as it reaches the edge of the tank it is "stuck" and bleeds as it travels along towards the scalding tank, where it is received by another man who pulls a chain and the pig is lowered into the tank and the chain removed. From three to six pigs are in this tank at one time, and when scalding is complete the pig is guided to the other end of the tank where it is lifted by a pair of steel arms, which revolve slowly, and is placed on a moving tray and carried to a revolving drum, grooved like the barrel of a gun, the ridges being composed of wire bristles which partially scrape the pig as it is propelled forwards by the revolving of the drum on to a bench, where two men complete the scraping. Here a steel spreader is inserted, a chain is pulled, the pig is hoisted on to a runner and carried forward into a furnace which resembles a huge drain pipe composed of two halves, each heated by burning oil, and which encircle the pig for about twenty seconds. The furnace then divides again, and the pig continues its journey. It is scraped again by one man; washed with a hose; disembowelled (the mesenteric glands and the viscera being examined); its lungs and heart are removed and examined. The carcass is split and examined; re-washed; stamped and weighed; and the member is paid by this weight. The spine is removed and sold for soup. The sides are placed in a cooling room for twelve hours. During all this time the pig has been travelling. Each operation is done by a separate man, who never leaves his place.

The pigs follow one after another. It occupies from twenty to thirty minutes to treat one pig from the time it enters the sty till it enters the cooling room. An average of fifty

pigs an hour are dealt with, or 2,000 a week of four days.

If the bacon is for export, the sides, when cooled, are dressed; brine solution is injected into the flesh by means of a hose armed with a large-sized hypodermic needle; the sides are then covered with salt and lowered into tanks, where they remain for forty-five days.

Even pigs which arrive dead at the factory are not wasted. They are taken to a separate building, where they are placed whole into a "digestor"; after "digestion," part is used as manure and part is incorporated with other material and fed back to pigs.

Notes On Tuberculosis and Milk

Professor Bang (Junior) states that his father's method for the elimination of tuberculosis is still used. Vaccination is not practised. The Sanocrysen method is impracticable for lower animals; three out of the five animals tested died from anaphylactic shock. Neither is the Calmette-Guerin method used.

All the medical profession recommend raw milk. Pasteurized milk must be declared and the rapid method is used, the slow method being forbidden. Less than 10 per cent. of the milk used for human consumption is pasteurized.

Professor Bang says that the subcutaneous or intradermal method is used alone, or they are used together, according to the desire of the owner.

Professor Bang believes that there are numerous cases of tuberculosis, due to the avian type of bacillus, which do not react to the subcutaneous test with bovine tuberculin, but they react to the intra-dermal test. Dr. Plumer, of the Serum Institute, Copenhagen, states that this is because the intradermal test is finer, though not so specific.

Doctor H. Magnusson, Director of the Serum Institute, Malmo, Sweden, states that in 1909, 90 per cent. of the cows in the province of Malmöhus reacted. The tuberculin test was used on the young animals which were kept isolated, and now there are 150 free herds, and 200 herds in which cases of open tuberculosis are removed.

Both subcutaneous and intradermal tests are employed; the latter is better, but the former has been more frequently employed up to the present.

All the milk returned to the farmers for feeding purposes must, by law, be pasteurized. Offenders are punished by fines. In Sweden when milk is pasteurized the slow method is adopted.

The farmer is paid on the butter fat content of the milk when it arrives at the dairy.

Notes On Abortion

Professor Bang (Senior) states that 2 per cent. of abortion is due to the tubercle bacillus, and 2 per cent. of this is of the avian type; the latter only appears to be found in the uterus—this may be due to the large blood supply to the pregnant uterus. He does not consider that vaccination has been successful.

Professor Bang (Junior) uses strains up to one year old for his vaccine, and makes no test for virulence. He has isolated the organism from the milk of an animal six months after it had been vaccinated. He thinks that the risk of a virgin heifer as a carrier is negligible. He has no statistics to prove that vaccination causes sterility, but does not deny the possibility of it.

Results of vaccination are very inconclusive.

Doctor Magnusson, Director of the Serum Institute, Malmo, Sweden, states that vaccination has only been adopted during the last two years, but the results so far are not encouraging.

He proposes trying the intravenous injection of the dead vaccine.

Great work is being done on abortion at the Serum Institute, Copenhagen, by Professor Thompsen and Doctor Plumer. Contagious abortion is a notifiable disease in Denmark (I would that we could say the same), failure to report being punishable by a fine of from £5 to £25. When an animal aborts in an hitherto free herd, the veterinary surgeon immediately takes a piece of the placenta and a sample of the blood, which are sent to the Serum Laboratory in special containers for examination. A smear from the placenta is examined microscopically, and if positive the blood is not examined. If the placenta gives a negative result, both the agglutination test, and the complement fixation test are applied; if one of these is negative then the case is considered to be doubtful, and a further sample of blood is taken three weeks later and examined.

In 70 per cent. of positive cases the bacillus is found in the placenta. It is impossible to tell from naked eye examination whether the abortion is due to the tubercle bacillus or to the abortion bacillus. When the result is positive the herd is placed under police control, and no animal is allowed to be sold to an uninfected herd.

If the infected animal is isolated at once, and kept isolated for eight weeks, there may

be no further case of abortion. The method recommended is as follows: after the aborted animal has been isolated, or otherwise disposed of, the blood of all pregnant animals in the byre is subjected to the agglutination test, and reactors are isolated; this test is repeated in six weeks, and again after a further period of six weeks. In this way infected animals are isolated before they become infective to other animals.

This method has proved highly successful.

Vaccination is also carried out, but results are very doubtful. In badly infected herds, when no vaccination is done, 35 per cent. to 40 per cent. of the animals abort. After vaccination 20 per cent. to 25 per cent. of the animals abort, but it must also be remembered that abortion will decrease by itself if untreated, providing no fresh animals are introduced.

The intravenous injection is to be tried.

The bacillus abortus cannot live more than six weeks in the uterus, but it can exist for a year in the milk.

Notes On Foot-and-Mouth Disease

Doctor H. Magnusson Director of the Serum Institute at Malmo, states that Sweden adopted a slaughter policy from 1886 until this January, when, owing to the severity of the last epidemic, in which 50 per cent. of the animals were affected, the slaughter policy was temporarily suspended and vaccination has been carried out instead. As soon as this present epidemic, which came from Denmark, has exhausted itself, the policy of slaughter will be re-introduced.

Only calves and pigs are vaccinated, and the disease then appears only in a very mild form and the mortality has been greatly reduced by this means. The dose for calves is 200 to 300 c.c. and 20 to 100 c.c. for pigs. For the preparation of the vaccine 7 to 8 litres of blood are withdrawn from each cow three weeks after recovery. The blood is preserved with chinosol.

A peculiar feature of the disease which has been frequently noted is that calves drop dead without showing any symptoms after they have been fed on milk from infected cows. In every case necrotic areas were found in the heart; sometimes these areas were fairly extensive, but often they were present only as thin necrotic lines. We were shown a number of lantern slides of these areas of necrosis, also of the sloughing of the claws and bones of the foot. Many of the abscesses in the feet are found to contain the Bacillus pyogenes.

Some cows have shown no symptoms other than very rapid and distressed breathing; upon being slaughtered, no lesions at all have been found; the respiratory distress is thought to be due to infection from internal secretory glands.

As soon as foot-and-mouth disease is reported, military guards are posted on the infected farm. Lime and lysol are used as disinfectants.

If foot-and-mouth has not been reported, it may be detected up to eight weeks afterwards by the examination of histological sections; pigmentation and vesicles are still apparent.

Loeffler's immunizing serum is used in some cases and gives protection for ten days.

Doctor Magnusson has also done a lot of research work in connection with actinomyces. He finds that true actinomycosis (Actinomyces Israeli) only occurs in the jaw; it is then a true ray fungus. He states that actinobaccillosis is confined to the tongue and lymph glands and is distinct from the foregoing. Also that the stomach lesions, formally attributed to actinomyces, are in reality due to Bacillus pyogenes.

One of our red-letter days was our trip to Malmo, in Sweden, where we visited the Serum Institute, the slaughter-house and the Agricultural College.

We were received by Doctor H. Magnusson, who speaks fluent English and who was kindness itself. Doctor Magnusson conducted us over the Institute, explaining everything; he gave us a brief lantern lecture on foot-and-mouth disease, and showed us how the serum was prepared.

We were later joined by Mr. Miles De Wachenfelt, the agricultural adviser to the Royal Swedish Legation in London, and together we attended a sale of pedigree Friesian bulls, which was very interesting. Four judges were employed and each had a printed form with the most important points tabulated for marks; the judges marked independently and then conferred after the examination of each bull was completed. Half the possible number of marks were given for pedigree and milk records. This, I believe, is a custom adopted throughout both Sweden and Denmark in judging stock.

We afterwards proceeded to the public slaughter-house, which is very similar to that of any other in Sweden and Denmark; the whole building is light and airy, and every possible device is employed to ensure facility for cleansing; all floors and walls are either white enamelled bricks, or else white tiles, and over these cold water flows continuously.

There is here an excellent cold storage accommodation for butchers, which consists of huge lock-up cages of iron bars, between which all meat is clearly visible. For these the butchers pay a small annual rental which must compensate them many times over for the meat which would otherwise perish from lack of cold storage.

There is also employed in this factory the most humane apparatus that I have yet seen for the slaughtering of pigs. I believe it was described by Professor Linton, in his very able article on that subject, but at Malmo, after the pig has walked quietly up the narrow gangway, he is pole-axed instead of shot. The pole-axe, however, is in this case quite humane; one man follows the pig up the gangway and, standing behind the pig, holds the pole-axe against the animal's skull; a second man standing in front gives the pole-axe a hefty blow with a heavy mallet from a full-arm swing, which drives the pole-axe about three inches into the skull. The side of the gangway is then dropped and the pig slides out and is "stuck."

In the afternoon, we went into the country to visit the Agricultural College, a mansion charmingly situated in most beautiful surroundings. Here, in addition to agriculture, are taught forestry, dairying, and farriery. The actual course for agricultural students is two years, and the cost £70 a year, including board and lodging; there are no extras. Each student has his own bed sitting-room.

In addition to the regular course of study, there are short courses for farmers and farm pupils, and, quite separate and distinct, a course for farm bailiffs and cowmen; these cowmen are all intelligent men who do not feed two scoops of this and one of that by rule of thumb, but who understand nitrogenous ratios and such like.

The school of dairying is excellently equipped, and is under Professor Rosengren, who is, I believe, one of the world's leading authorities on cheese. Here we saw thousands of cheeses of every variety and size from half cwt. to quarter lb.

As a special favor we were taken into Professor Rosengren's private laboratory, where, under double lock and key, we were shown his latest treasure—a small cheese under a bell jar, with an absolutely pure culture growing on it; only the professor and one of his assistants had the key to this cheese, which was tended every few hours.

Two veterinary surgeons are attached to this college, which has its own farms for experimental breeding and research. Shropshire sheep are the latest import from England.

In Sweden it is absolutely forbidden by law for anyone unconnected with it to enter a cowshed at the present time, owing to the prevalence of foot-and-mouth disease; and even in normal times it is considered in the light of an offense.

In Sweden there are annual grants for veterinary students to enable them to go abroad for three months' study in any foreign country. There is one grant of £90, two of £65 and three of £25. Two-thirds of the grant is paid before leaving, and the remaining third, after they have returned home and written a report. Any student desirous of studying abroad may apply for a grant. This is a custom which might well be adopted in this country by the various veterinary colleges; or indeed by divisions of the N.V.M.A., such as the Midland.

The last, but not the least interesting, feature of our stay in Copenhagen was the demonstration of Danish veterinary instruments, given by Professor Thompsen, and assisted by Professor Morkeberg and Professor Folmer Nielsen; this was followed by a dinner, given by the Danish instrument makers, Simonsen and Weels, at the Royal Yacht Club.

Four of us stayed the night at Randers, where M. Mose, Professor Nielsen's brother-in-law, has a large practice; he is one of the foremost veterinary surgeons in Denmark. M. Mose was hospitality itself; he took us round several of the country dairies, all of which are run by the farmers themselves as co-operative concerns. Attached to each dairy is a Controller, who visits every farm in his area every three weeks; he weighs and takes the butter fat percentage of each cow's milk. It is on this fat content that the farmer is paid. The Controller is qualified to give expert advice upon feeding, etc. He also showed us a heifer, on which, nine weeks previously he had done a cesarean operation; only a slight scar remained. We also saw an officer's charger, on which he had performed the Swedish crib-biting operation. M. Mose told us that he frequently does both these operations.

We were very interested in his method for casting horses in his own yard. He has a narrow building like a small garage, in which is a raised concrete bed about eight feet square; lying over this is a wooden platform. On this platform are placed two or three sacks filled with straw. The horse is placed parallel to the

concrete bed, the hobbles are placed in position with the rope just taut; the free end of the rope is then fastened to an iron ring, which is embedded in concrete outside the building. A rope is put around the forearm and over the shoulder which is further away from the bed; another rope is placed round the horse's flanks. Two men take hold of these two ropes and a third man holds the halter. All three men are standing on the side of the concrete bed away from the horse. At a given signal the three men pull the horse on to the bed and he falls on the sacks; one of the men then sits on the horse's head. In falling, the horse tightens the rope through the hobbles. M. Mose states that he invariably uses this method on his own premises and that three men are sufficient to cast the biggest and strongest horse.

Items of Interest to the Practitioner

A. T. Kinsley

Protargol sticks have been recommended in cases of retained placenta. From six to eight sticks (protargol) are introduced into the uterus and repeated in 24 hours unless the placenta is easily removed. Further reports of the use of protargol sticks in retained placenta will be of value.

Blackhead in chicks is sufficiently prevalent in the Mississippi Valley States that those veterinarians interested in poultry practice should be giving consideration to methods of control as this disease in chicks is probably identical to blackhead in turkeys and does not respond readily to treatment.

Toe pecking in chicks is probably caused by lack of animal food and inactivity. The use of one level teaspoonful of salt to a gallon of water to be used as the only supply of drinking water according to some appears to correct this vicious habit rather promptly.

A parathyroid extract has been found of value experimentally in increasing the calcium phosphate content of the blood and may therefore be of value when administered in cases of fractures. This line of treatment is at least worthy of a trial in fracture cases and also rachitic conditions.

Vitamin A is retained in cold storage eggs according to the Bureau of Chemistry of the Federal Department of Agriculture. Tests were made of eggs that had been in cold storage nearly nine years by feeding rats that had been deprived of vitamin A until they showed distinct symptoms of vitamin deficiency. The rats recovered when fed from 0.1 to 0.25 grams of the storage eggs.

An extract of liver has been prepared by Dr. McDonald of St. Catherine, Ontario, that experimentally has proved of value in reducing blood pressure. Smaller quantities of this extract are required to diminish blood pressure than of histamin or cholin and the effects are more lasting. This extract does not have a cumulative action and the lethal dose has been determined. Such a product will be of very great importance when it is perfected, particularly to the physicians.

The following inquiries concerning equine practice are of interest at this time, for not only farmers but also dealers are now firmly convinced that there will soon be a brisk demand for horses and mules:

What is an effective method of breaking a horse or mule of halter pulling?

How can a mare be tied so that her young foal will not get hung in the halter strap?

Is there a simple, inexpensive effective method of breaking a horse that kicks while hitched?

What does a horseman mean when he states that a certain horse is "a cold collar"?

What is the cause and treatment of chest founder?

Is "cross firing" a serious defect in a harness horse?

Is there an effective method of overcoming a lugger?

What is meant by the phrase, "smokes his pipe"?

Is there any method of shoeing that will effectively overcome winging?

What is the cause and treatment for tongue lolling?

Discussions of the foregoing topics or any of them will be welcomed.

CASE REPORTS

OPERATION FOR TRAUMATIC PERICARDITIS

On June 21, 1925, I was called by a farmer to come as soon as possible to see a sick cow, which he said had been sick for five or six days. I was able to leave immediately and found a grade Holstein cow, seven years old, in good condition, which had freshened six weeks before. At first glance, the cow looked quite normal. I asked the owner to explain the condition of the animal as he had observed it and what he had given in the way of medicine.

He told me that five or six days before, the cow went off her feed and seemed to want to get off by herself and lie down. She went down in her milk flow about half until finally she was not giving anything. When he first noticed that something was wrong with the cow, he gave her two pounds of salts in a drench, waited twenty-four hours, and as there was no result, he repeated the dose. He gave two pounds of salts every twenty-four hours until he had given eight pounds, and still there were no apparent results, so he said he became alarmed and called me.

I examined the cow very carefully and found very little peristalsis present and sometimes no sound whatever, temperature 102.2° F., pulse 96, breathing a little above normal, and when lying down the animal would give an occasional grunt. The mucous membranes were slightly injected. Sometimes I thought I could detect a slight splashing sound with the heart beat.

I suspected traumatic pericarditis and explained my suspicion to the owner, but he thought he had overfed the animal causing impaction. I did not think the cow's chances of recovery were very good and decided it might be good business to treat the owner as well as the cow for a day or two, so I left the following mixture:

Powdered nux vomica	ʒ vi
Powdered Barb. aloes	ʒ ii

Two tablespoonfuls to be given in one-half pint of water every three hours for twenty-four hours.

I prescribed nux vomica because it is a great stomach tonic, increasing peristalsis and also stimulating heart action. I added aloes because its great use is to relieve the over-loaded condition of the bowels and it also attracts more blood to the bowels. I have found that a mixture of this kind gives excellent results in what is commonly called indigestion in cattle, and it is not expensive, which is a very important item.

The farmer called me the next day and told me there was no change in the condition of the patient. Owing to other business, I was unable to see the cow until the following morning, so told the owner to keep on with the same treatment.

The following morning I found the patient much as I had left her. The pulse was a little stronger and beating 90, temperature 102° F., a little more peristaltic action, but very little feces had passed. I noticed edema at the brisket, which led me to believe more firmly than ever that there was a foreign body of some description lodged somewhere in the digestive tract. I suggested to the owner that he let me operate and try to locate the foreign body and if possible remove it as I thought that would be the cow's only chance for recovery, explaining also the advantage of doing it while the patient was strong and not weakened too much. He wanted me to wait twenty-four hours more, which I consented to do. I had him continue the same medicine at the same hours, only in tablespoonful doses. Before leaving, I administered one and one-half pints of raw linseed oil and told the owner to repeat the oil at night. I administered the oil, because besides being a laxative, a considerable amount is taken up as food, and this would make the animal a little more able to withstand the operation.

The following morning there appeared to be no change except that the cow had a noticeable look of distress. I gave a hypodermic injection of one-tenth grain lobelin sulphate as a stimulant to help ward off collapse. The owner thoroughly cleansed and shaved an area six inches long and three inches wide in the exact location for performing rumenotomy. I injected a small quantity of a three per cent solution of cocain

in the skin to make the operation a little more comfortable for the cow.

A bold incision was made downwards and forwards, large enough to admit my hand. I removed my shirt, put on my obstetrical clothes, which includes a jacket without sleeves, and bathed my arm with a mixture of raw linseed oil and a small quantity of carbolic acid. I then proceeded to investigate by inserting my hand and following around the anterior surface of the rumen down to where the reticulum lies up against or in close proximity to the diaphragm. Here I found the reticulum and diaphragm adhered together. I carefully broke down the adhesion and finally came to a tube or more solid portion about the size of my finger, which was rather difficult to break down. However, it was broken just outside of the reticulum, and right at that point I felt the foreign body, which was quite difficult to remove. It was an old, somewhat bent, three-inch wire nail. Needless to say, I felt quite relieved when I drew it out, because I had quite a gathering of onlookers, including the sympathetic, critical, helpful, helpless and every other kind that make things disagreeable for the veterinarian if the operation happens to be a failure.

While I had my hand next to the diaphragm, I detected considerable fluid anterior to it, so I decided that in order to make the operation a success, I would tap the pericardium. The exact location was quite easily figured out when I had my hand almost in the right place on the inside. So with the help of an assistant, I marked it as best I could, and as nearly as could be figured after the operation, the exact location was about three inches posterior to the xyphoid cartilage and about two inches to the left of the linea alba.

My assistant cleansed and shaved an area about three inches by two inches, and I made an incision with a scalpel about two inches long on the outside and getting shorter as I went in. I cut through to the pericardium, which can be told by the beating of the heart. Of course, this has to be done very carefully. I pushed my finger up through until it touched the pericardium and then guided the trocar and cannula up beside my finger through into the sac. I removed the trocar, and about a gallon of fluid was withdrawn, somewhat thicker than water with a kind of a greenish tint and a slightly putrid odor. After it had stopped running, I packed the opening with a piece of iodoform gauze and held it in place with a compress, which in turn was held by a sort of surcingle.

The opening in the flank was sutured with six interrupted sutures and painted with collodion. The cow was given another hypodermic injection of one-tenth grain lobelin sulphate and one pint of raw linseed oil. I left some powdered nux vomica with orders to give two tablespoonfuls every three hours until I saw the patient in the morning.

The following morning the cow looked quite bright and drank a pail of water. The pulse was 70, temperature 102.2° F. She also took a mouthful of grass. A pint of raw linseed oil was given, and I changed the medicinal treatment completely. I put her on a potassium iodid treatment to hasten the repair to the pericardium and surrounding structures by absorption. I ordered one dram once daily in a drench for seven days with one pint of raw linseed oil every other day. At the end of the seven days, I gave a pound of salts, also a tablespoonful of Fowler's solution twice daily as a general tonic to promote the appetite and aid digestion. This was given for ten days along with the potassium iodid.

I did not see the patient the next day but the owner informed me that she was no worse. However, I saw her the following morning, and sometime during the night she had passed a very copious amount of feces. The temperature was 102, pulse 68, and she appeared hungry, so we gave her a handful of grass, which she seemed to enjoy. I removed the packing where I had tapped the pericardium, cleansed the wound thoroughly, repacked it and left orders for the owner to repeat the dressing for three or four more days, telling him when the stitches gave way in the flank to treat it as an open wound by keeping it clean, etc.

I did not see the cow then for seven days, but I talked to the owner every day, and he seemed more encouraged every time I saw him. When I did see the cow, she looked much improved. She was turned out into the orchard, where she pastured along quite contentedly for half an hour when we put her in. The owner was very careful and did not let the animal have all the food she wanted to eat for two weeks. He gradually gave her a little more each day.

I did not see the cow again until October, and she looked well. The opening in her flank was just about healed, and the owner said she was giving about half her usual mess of milk.

This operation should become more popular. It causes quite a lot of work, but there is nothing to lose since the patient will die if left alone, and if one happens to make a wrong diagnosis,

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the opening in the flank is not very serious. I think it a wise plan, however, to follow up the operation with the tapping of the pericardium.

H. J. Davis, B. V. Sc.

Aylmer, Ontario

PARTURIENT LAMINITIS IN COW

On the morning of December 15th an urgent telephone call was received at the office requesting my immediate presence at B——, a distance of sixteen miles. Upon further inquiry it was learned that a cow had given birth to a healthy, strong calf three days before and that morning she was found lying in the stable, unable to rise and suffering from what the owner, a rather intelligent man, thought to be "milk fever."

The following case presented itself in an only recently erected cow-barn with nothing but hard-frozen "terra firma" as floor and probably a handful or so of straw, which our western farmers prefer to burn up "en masse" instead of making some profitable use of it.

A beautiful, big Holstein cow, six years old, was lying stretched out on her right side, in which position she was found early in the morning, showing signs of uneasiness and distress. The owner repeated his statement regarding calving, adding that no assistance had been required during delivery. Asked about the placenta he gave the information that "this part was quite all right," and there was indeed not the least sign of a vaginal discharge nor did one's regio olfactoria get in the least offended. A large, well set-up udder appeared flappy and it was stated that the milk flow had been noticed to decrease the night before and that it had practically ceased altogether that morning when hardly a cupful of milk could be withdrawn. Defective appetite was first noticed that morning, the animal having consumed on the previous evening all the food offered to her, consisting of chopped oats and chopped green feed. A very small amount of hard and firm feces had been passed during the night. No satisfactory information was available as to rumination. It being a miserable, cold zero-morning, I desisted from further examination and endorsed the owner's diagnosis of parturient paresis (milk fever).

In order to carry out the reputable air treatment, it became—(luckily)—necessary to shift the cow's position somewhat and to move her away from the wall. During our efforts to do so, she raised her head suddenly and made an attempt to get up, which feat she accomplished with very little assistance on my part. She stood firmly on her hind feet and kept both front feet advanced to the limit, putting the body weight alternately from one to the other foot, almost afraid to touch the ground at all. The head was held extended and there were signs of great pain and intense suffering. She could not be induced to "stand over." A thorough examination was entered into with the following result:

Temperature 105.1° F.; pulse 72, strong, regular; respiration 28; front hoofs hot, most sensitive to percussion, slight swelling and reddening above the hoofs extending into the interdigital space; hind hoofs normal. An exploration per vaginam showed the os uteri sufficiently open to introduce the whole hand into that organ which contained about two pints of a dark reddish, thick, only very slightly fetid liquid which was due partly to retained lochial discharge and partly to the retention of a small piece of placenta covering four or five cotyledons. At that point of the examination the patient resumed the recumbent position and could not be induced to rise.

Diagnosis: parturient (metastatic) laminitis.

Treatment: Manual removal of placental pieces under permanent irrigation with potassium permanganate solution, iodoform capsules, pituitary extract, arecalin hydrobromid, sodium salicylate, cold applications on front feet, plenty of bedding.

December 16th. Owner reported that patient got on her feet of her own accord, ate some hay and drank a pail of linseed tea, but she was still assuming the peculiar position of the front feet and showing signs of suffering.

December 17th. Temperature 101.4° F.; pulse 72; respiration 16; appetite improving. Patient assumed standing position and moved around more freely, giving ca. two quarts of milk.

December 21st. Owner reported that the cow had been daily improving and was giving one-half pail of milk at the time.

My reason for bringing this article before the readers of Veterinary Medicine is two-fold.

1. It is only my second case of that nature during seventeen years of practice, the first one having come under my observation ca. fourteen years ago, at Wil, St. Gallen, Switzerland, with fatal termination.

2. I wish to give especially to the younger members of our profession the benefit of my mistake and advice to beware of a rash diagnosis,

placing too much confidence in the anamnesis. Stick to a thorough examination no matter how plain and sure a case appears to be at first sight. There may not be a lucky omen in store for you, for if there would not have been a wall, in all probability there would not be a cow today, in my case.

C. H. Grunert, V. S.
Ft. Saskatchewan, Alberta

EXPERIENCE IN CATTLE OBSTETRICS

"Every man is a debtor to his profession"

We are taught that ten cows experience dystocia to one such case in any other domestic animal. That being the case this subject is then so broad and far-reaching that to touch it in just a few places in a paper like this is all that is possible.

My obstetrical bag measures 8 x 10 x 16 inches and contains:

1 absolutely clean sleeveless sack coat, size 44, buttons full length, very tightly rolled and strapped. When used it is scalded and dried immediately.

1 pair of rubber gloves in thin box of talcum powder; very seldom used.

1 tightly rolled 14-inch, 3-yard muslin bandage.

2 tightly rolled 6-inch, 3-yard muslin bandages, to be used to compress everted womb.

3 wooden-headed hold-fast retention sutures for prolapsed vagina or womb.

1 pound of granulated sugar to be used at such times.

1 4-ounce sprinkling-top can of powdered alum.

2 4-ounce sprinkling top cans of powdered slippery elm.

1 4-ounce bottle of Eucamphol.

1 4-inch roller bandage to be used on mare's tail.

Several aseptic 4-foot sash cords, ends whipped, separately wrapped in paper.

Several aseptic 4-foot ropes, twice as thick as sash cords, wrapped in paper.

1 instrument roll containing 1 jointed and ringed repeller with a lot of I might say useless attachments that I have from time to time bought thinking how handy(?) they would come in. They consist of various kinds of hooks, port-cords, rotators, chisels, knives, saws, etc. (I am not a friend to sectional screw obstetrical instruments for many reasons.)

1 Lund's truss iron.

Several patterns of individual knives and hooks.

Any one of these things may be more or less (especially less) necessary some time. A very few obstetrical instruments, well chosen, are all that any veterinary surgeon needs.

In addition I carry not less than 35 feet of ¾-inch good single rope closely tied in a small coil. This rope I consider my greatest help in some cases.

I also carry a very closely coiled 35-foot ⅜-inch pure manila rope strung in a four-sheave (two in each block) self-locking hoist, traction capacity 1,000 lbs., swivel hook in each block. The ropes and pulley take very little room when properly coiled, and weigh ten pounds.

Since I bought this hoist many years ago, price 90 cents without rope, I do not remember having assumed the horizontal position in such cases, save occasionally to satisfy the owner as to the position of the fetus, and as a rule this amounts to very little, and is not necessary if the hoist is to be used.

For many years I have made it a rule to elevate the hind quarters of cows for the purpose of effecting the reposition of the fetus, or the return of an everted womb. The elevation is easily done, much easier on the mother, a 500 per cent help to the operator, and from every angle of consideration it is a good thing.

At all times I carry a set of English hobbles and a lariat. The hind legs are secured above or below the hocks according to hitch overhead, with two padded hobbles after the fixed block is hooked overhead fully as high as is necessary. Always hook the fixed block full height to begin with, so that readjustment time will be saved. The first time you do this work you will be surprised at the height necessary.

When everything is ready—water, straw, help, patient in the best location for the ordeal, operator properly clothed, the few instruments needed ready in warm disinfecting fluid, then don't forget if at night to insist on having at least two filled and trimmed lanterns that will not blow out. I always carry a good lantern on such calls at night, and it is always ready, together with the before-mentioned collection to be used at a moment's notice. I never use an anesthetic in such cases in cattle practice for the simple reason that the patient and myself get along better without it. I have tried it.

Now the hoist is adjusted and the hobbles are properly fixed and hooked to the fall block, and slack taken up. The cow is elevated, the operator straightens the fetus and the cow is lowered. When it is necessary and in due time, proper traction is applied, and if after strong efforts

fail to get desired results, proceedings are suspended and other means made ready.

There is then made in the 35-foot rope a single fixed loop just large enough to fit over the pelvis. A bowline is fine. The loose end is carried forward between the upper hind leg and the udder, the cow lying on her side; then pass the rope between the forelegs and around a round or padded post (if you wish to use the rope again) in front of the cow and back along the withers and loins and tie to the loop at the sacrum.

Remember the block and fall should be of the self-locking variety. The hook of the fall block is fastened to a post plenty far enough behind the cow and the fixed block hooked to the cords on the calf, or vice versa.

Everything being ready the cow is hoisted so that the root of the tail is not less than two-and-a-half or more feet off the ground or floor. I have never had any bad results from this elevating of such patients. Their breathing and expression should be watched and judgment must be used when to rest them. Bundles of straw or hay may be placed under the hips, and the hoist slackened when one thinks best. If the feet or head of the fetus is buried in either flank, it is good practice to lower the patient to the raised pile of litter under her, and turn her to the opposite side. This helps greatly in the effort to reach these members.

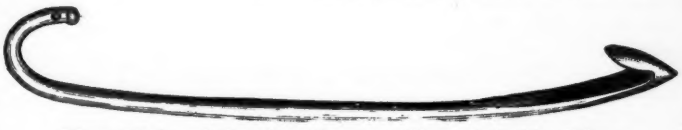
The perineal region must of course be scrubbed with a disinfecting fluid. The operator can then proceed with dispatch which usually takes the place of the otherwise prolonged labor in about one-fourth of the time.

When reposition is effected the patient is immediately lowered, made comfortable and allowed to rest for a while. But before the cow is lowered the members to be first presented are secured in their proper direction with cords or hooks. I do not like hooks.

I have had cases in which after the cow was lowered as above directed and left alone, say for the length of time to eat a meal, upon returning to the barn, I have found the cow up and the calf delivered. A short rope or cord or two may be passed around the cow and fastened to the two strands of the rope passing from the cow to the head post, but this usually is not necessary. You see the cow is really in a rope sling, and the cruel and awful traction on the head and neck and back which is often applied is thus obviated. The pulley and sling do away with so many helpers, noise and smart Alec remarks, and by careful traction, delivery can be effected much more satisfactorily to all concerned. The hold is thus maintained, the traction is continuous and is a complete success, and there is no fuss about it.

What veterinarian has not known of (I will not say seen) the barbarous practices of poor cows being dragged around on the ground, tied by the head, rails laid across the ribs, feet tied to some object, and so on, and then pulled at even with a horse, yes, and even by a tractor through the crack of strong fence or a barn, pulling until such damage was done to the mother, not to speak of the calf, that even if the cow should be delivered, injury was done to the extent that she was ruined or killed?

Besides my obstetrical valise and ropes, I carry a pair of obstetrical shears, and a long crotchet or hook that I wish to especially men-



Blunt Hook and Crotchet, Courtesy, Sharp & Smith, Chicago

tion and also call attention to the illustration of it.

Always insist that this crotchet or hook should be 22 to 24 inches long. It is made of 5/16-inch steel. No catalogue that I have lists it that long, which I know is essential. The mouth of the broad hook is ½-inch wide, and edge of same and the conical point are slightly dulled. This is not mentioned as a new thing in this line, for it is one of the oldest known obstetrical instruments in human as well as veterinary practice, and about the most useful. It should be of the very best of hardened spring steel so that there will be no tendency to permanently bend when great stress is brought upon it.

With no other instrument than that crotchet and my hands, if it were necessary, I believe I could fearlessly approach and deliver a large percentage of the average run of dystocia cases in cows in the average veterinary practice; monstrosities and maternal pelvic constriction cases excepted. By this I do not mean that veterinarians should omit anything which may hasten or bring about a favorable termination. There

is the job and it should be done in a workmanlike manner.

I note of late that the blunt end of this instrument has been improved by the making of a hole in the end so that it can be used as a portcord. No doubt that is a good improvement. I have used many kinds of hooks but this one for me obviates the use of all the rest. It does away with the carrying into the womb of hooks and ropes in the great majority of cases, and owing to its small diameter, being plated, blunt and stiff, a little curved, it is easily, quickly, safely, and cleanly inserted along the arm after the arm is introduced, no matter how tightly the arm is contracted upon or how dry the passage may be. Its stiffness allows it to go directly to the place where the fingers, without groping, can place the hook where wanted.

The time employed in carrying hooks and ropes far into the dry and tight uterine cavity is often very laborious in a delayed delivery, no matter what lubricant is used and no matter what position the patient is placed in. To those who have never used this hook I can heartily recommend it. After it is inserted into the fetus, you see the hook on the other end gives you a ready hold either with a piece of wood or a looped rope. What veterinarian has not worked long and tediously, trying just to slightly turn a screw-jointed and beautifully plated knife or hook at the end of his fingers in a deep uterus, hampered by great pressure, dryness, stringy decomposed membranes, a restless patient, and knowing all the time that a scratch from the hook or knife might infect him or the patient to an extent to cause death? I have almost lost my life several times by infection from cases like the ones in question. And I will say infection of this kind is something awful to suffer.

The veterinarian has now worked long and diligently to place the instrument, but he finds because of the screw joint it insists on turning the wrong way.

If a greased plated hook can hardly be manipulated by a greased hand outside the uterus, how then can it be carried into the uterus and used safely, where the hand can scarcely be made to enter? Not to speak of a screw joint.

I was once called to attend a very large and valuable cow after three university graduate veterinarians had exhausted their efforts to relieve her of a dead fetus, but without effect. They with the owner had abandoned her, and she had wandered out from the barn down a very steep bank to a long and wide sandy beach. As she refused to die, as a last resort I was sent for. The poor cow was so sick she would not move. From all the symptoms I was sure she would die, but being urged and bribed to do what I could, I made the effort. The banks of the stream were so steep that it would have been next to impossible to have hauled her to a tree where she could have been raised by the hind quarters. I have never used a tripod for such cases.

While making preparations to attend the case, two men went for shovels and I had them dig a sloping pit about four or five feet wide, about two and a half feet deep at one end, and about eight feet long. Rueff's method was used to lay her down, and leaving the lasso on her she was rolled into the pit, head down the grade, body inclined to the left side as the head and feet of the fetus were buried in the right flank. When the patient is in this position the attending veterinarian must of course kneel. Her perineal region was greatly swollen and dry from manipulations, etc., and the veterinarians had thoughtfully left all ropes and hooks attached, but had ethically cut off all cords and ropes just inside the vulva! With lubricated arms I had but little trouble to straighten out the feet and head. We dragged her out of the pit, and with conciderable help she was delivered of a dead calf. After care was scrupulously given, but the cow died.

I just relate this as an illustration that veterinarians often do not start right or do their job in a workman-like manner, and therefore do themselves, their patient, the owner and the profession a great injustice. I have been called in many cases where others have failed to deliver calves, and do not remember of one such case where the result would not have been different, if they had not failed to prepare the animal, themselves or the surroundings properly. An owner cannot have confidence in our knowledge if his judgment tells him that preparations have not been made as they should have been.

After taking a glance at this kind of a patient I always make a survey of the surroundings be they ever so meager, and decide which place is the best for the patient and myself during the ordeal.

In hot weather I sometimes take the patient to the orchard or woods. Before even I take off my coat in cool weather, I see that everything that is needed is provided as nearly as possible. The first thing is plenty of room back of the patient; plenty of straw or other litter, plenty of water on heating, and what help may be available, some clean vessels, and if it is night, plenty of light that will burn and not smoke, go out or

blow out. If the weather is cold or blustery, the most comfortable place is taken, and all cracks of any size are stopped and doors closed. An ideal place, of course, cannot be found around an ordinary barn, but we can approximate as best we can. The animal should be removed to a place by itself even if it has to be hauled.

I once refused to attempt to relieve a cow that was down in a dripping stall, a cold winter's night, after going twenty miles, part of the way in a buggy, the owner leading the horse in a midnight rain. We finally selected a dry part of the barn, but how to get her around there was the question. It was raining and the mud around the barn was ankle deep. We finally got her up and started her out when she fell half out the doorway in the mud and rain. No one to help but some half grown boys and their father. No telephone. What could we do? She would not get up. I assumed command. We harnessed a good horse, repaired the sled, pulled the cow out of the door into the mud and rain, loaded her onto the sled, hauled her around to the other side of the barn, tore off the sheeting, rolled her over the straw-covered cross-piece, then nailed up the side of the barn, brushed or rather scraped the mud off the cow (never mind the mud on us), got a lot of hay for bedding, made the cow as comfortable as possible for a short time while we went to the fire for a while. We then got ready to relieve the cow, which we did by 3 a. m., saving the cow and calf.

I repeat that such a patient should be removed to a place by itself, even if the owner remonstrates. The average cow stall is, in my mind, about as poor a place as possible in which to handle a case of this kind. Take no chances. Get a good start by being thoroughly prepared and having inconveniences reduced to a minimum. The owner or help may protest against tearing out a partition, using hay for bedding, going after help, using thoroughly clean vessels, etc., but most men are reasonable and will soon see that it is all for the best.

Another thing, we should never appear to be in a great hurry or anxious to get through so as to go to some other place where they may be waiting for us. It is not very often that we go to two obstetrical cases on one farm in a short time in my territory, and if it is the first call there, they have a long time to talk and think over what we said and did. It is really quite an event on that farm. I went the other day to see some cattle and I had to inquire the location of the farm, but afterwards the owner asked me if I did not remember I had made a call to this farm a score of years prior to this visit. I could not recall it, but they could tell me everything I had said and done, twenty years before.

H. O. Ward, V. S.

DISEASED SEMINAL VESICLES RESPOND TO MASSAGING AND AUTOGENOUS BACTERIN

A three-and-a-half-year old purebred Guernsey bull, of fashionable breeding and admirable type, was sold out of an accredited herd with the history that he was a prompt and sure breeder and had to his credit several exceptionally fine calves, all of which were shown to the present owner before the sale was consummated.

The bull was delivered by motor truck some seventy-five miles distant, served a heifer the following day, three heifers within a few days after and several heifers and cows later.

Everything seemed normal until the bull had been at the farm some five weeks. Then it became noticeable that in about twenty-four hours after service many of the females served developed a yellowish discharge and that all of the females served except the first three had been returned for service. An examination was made and the right seminal vesicle found to be considerably enlarged. On pressure it could be pretty well emptied and somewhere between half an ounce of yellowish pus pressed out.

Bacteriological examination of pus showed presence of Staphylococci albus and aureus, and streptococci.

We suggested that the bull be sent to our hospital where he could receive regular attention, which was done.

An autogenous bacterin was prepared containing fifty billion killed organisms in suspension to each two cc. made up of 60 per cent streptococci and 20 per cent each of Staphylococci albus and aureus.

Treatment was begun by massaging the vesicles and giving two cc. of the bacterin.

This treatment was repeated six days later with the exception the dose of bacterin was increased to 4 cc. Contents pressed from the vesicles was somewhat changed in character, more fluid and not so yellow. Gram stain smear showed staphylococci and a few streptococci, also a few active spermatozoa.

The vesicles were massaged again on the seventh day following and the dose of bacterin increased to 6 cc. The amount of fluid that could be pressed from the vesicle was consid-

erably less and only slightly cloudy, a few staphylococci and streptococci still present in Gram stain smear.

Seven days later the organs were again massaged and the dose of bacterin increased to 8 cc. Seminal fluid only slightly cloudy, many actively motile spermatozoa present, which remained active after being exposed for ten minutes at room temperature. Gram stain smear showed presence of staphylococci only, plate culture showed Staphylococci albus and aureus.

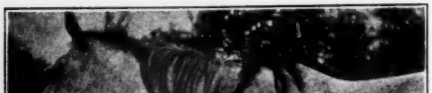
A week later the organs were again massaged and the dose of bacterin increased to 10 cc. Seminal fluid very slightly cloudy, many spermatozoa actively motile; Gram stain smear showed a few epithelial casts but no organisms; agar slant smear showed no bacterial growth during incubation of seventy-two hours.

The bull was then sent home with the request that the local veterinarian continue the 10 cc. dose of bacterin each week for a period of six weeks, when another physical and microscopical examination would be made. On this examination the seminal fluid was normal in character, spermatozoa plentiful and active, no organisms present.

We then gave permission for light service with the result that seven females were bred by the bull within eight weeks. After four of these animals had passed six weeks without recurrent estrum, we examined them for pregnancy and found three of them pregnant.

J. F. DeVine and J. F. Starkey

Goshen,N. Y.



A case encountered in the practice of Dr. R. C. Calkins, Fairbury, Ill. The animal was a saddle mare, seven years old. A hard swelling started at the throat, being noticed in April, 1925. The usual treatment was given, including bacterins. Then, the same kind of swelling developed in the breast, the edema coming on rapidly, and the mare died from strangulation last September.

DELIVERY OF MONSTER CALF

I was called to the home of Mr. H. in this city, February 22, 1923, to see a cow that had been in labor since the evening before. On arrival I found a grade Holstein cow, four years old, in good physical condition, weighing about 950 pounds. This was her second delivery; the first was normal and without help.

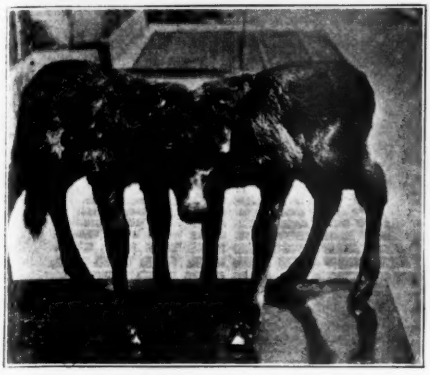
The preparations usual in obstetrical cases were made—changing clothes, washing and cleansing the external parts of the animal with soap and water in which had been added some pure tar and as a final cleansing agent washing with chloramine-T solution. Then oiling my hand and arm well, I proceeded to make an examination of the parts. On reaching into the vagina, I could find only a dorsolumbar presentation of the fetus. Finally I was able to locate a tail and six legs, so I came to the conclusion I had twins to deal with.

As it was cold with the snow blowing between cracks in the stable and the fetus was dead, I made up my mind that it was useless to attempt delivery with the fetus intact. So I decided to get busy and perform embryotomy as there was very little if any uterine contraction present, and waiting longer was spending good time for bad.

The following technic was used. First, I located one of the front legs of the fetus and drew it out as far as possible. Then I made a circular cut around and below the knee, then as far as the sternum, having an assistant hold the foot with a rope placed around it. Next I dissected the skin from the leg, using the oval end of my embryotomy knife, or hook as it is sometimes called. My knife is 22 inches long and jointed with the regular hook knife on one end; the other end has a ring 1½ inches in diameter. This gives me the two instruments in one, and I have so much more power in using either the knife or the blunt end for separating the skin from the muscles. With this long-handled knife, I can use one hand as a guide or shield and there is no danger of lacerating the walls of the uterus or vagina. Also the long handle gives the operator so much more power, and if need be he can have a helper when cutting bone or cartilage.

The next step was to remove the other foreleg following the same technic as before. After this was done, I had much more room to explore the cavity and could outline one of the hind legs and tail but still could not remove the fetus. So I cut through the pubic bones and eviscerated the abdominal and thoracic cavity. Still there was not enough room, so I took out

the ribs on one side. After this I could collapse the thorax and locate the head. I placed a small rope around the lower jaw just back of the incisor teeth and with another chain around one of the remaining forefeet, with but little traction, the so-called calf was expelled. It



proved to be a monstrosity as shown by the illustration herewith.

It is needless to say that it created quite a lot of talk among the bystanders, and all kinds of remarks were made as to the cause and even witchcraft suggested. I brought the fetus home and made a close examination of it, finding that both bodies contained a full set of digestive, respiratory, genital and urinary organs (female), but only one head and pharynx. I had the Crosby-Frisian Fur Co., Rochester, N. Y., mount the specimen for me. I receive many inquiries from clients coming to my office as to the cause of this freak.

This cow has delivered two normal calves since. In the case related, I was fortunate to be called first before the neighborhood quack and local granny women had been called, and no team of horses or mules or even a block and tackle had been used, which would have complicated the condition very much.

This report offers nothing new as to the method of delivery, but it may suggest to some young practitioner not to be too hasty in his prognosis or his line of technic. When instructor at the St. Joseph Veterinary College during the winter of 1920-21, I always advised the class to study all works on obstetrics and take all advice possible from older practicing veterinarians. Then when they got on the ground with a real case, they would have to take into consideration which technic would be the best for the dam, fetus and operator and act accordingly. No two cases are identical in every respect, and besides the local surroundings have to be considered.

S. E. Hershey, V. S., D. V. M.
Charleston, W. Va.

DEATH OF HORSES FROM EATING YELLOW STAR THISTLE

During the past nine years, I have encountered about twenty cases of horses that were suffering or died from this condition. Some were on pastures containing this pest. Others were getting it from hay cut and stacked after the thistle had blossomed.

This yellow star thistle has no spines nor leaves on the stem but has a yellow ball tip on each branch composed of numerous spines surrounding a bright yellow tuft which contains the seed. The spines are one-half to one inch long, very slender and strong, similar in some respects to the thorns or spines of the prickly pear. The plant is known botanically as the Centaurea solstitialis and can be looked up by readers who are not acquainted with it, although those in the section where it grows need no introduction, unless it be a walk across a pasture or summer fallowed field where it abounds. I might say that the flower of this thistle makes a very fine grade of honey, and for this reason it is not eradicated as it should be in certain areas.

The usual history of these cases is that the owner tells the veterinarian that his horse cannot eat and drink as he should and thinks the animal may have something the matter with his tongue. Owners who pasture or feed animals on this kind of feed, as a rule, do not pay very much attention to their stock, and often the first animal to be brought to the attention of the veterinarian is a dead one to be autopsied.

I have not had an opportunity of observing a case at the onset, but by the time a veterinarian is called the symptoms are about as follows: The animal is very much emaciated, head held forward and downward, tongue protruding about an inch, eyes sunken, membranes colored a dirty gray or yellowish, pulse and temperature subnormal, respiration shallow, gait staggering, attempts made to drink but the animal cannot swallow, may pick up a mouthful of food but does not chew it. The average course is about two weeks.

On examination, often the points of the spines can be felt penetrating the skin over the esophagus. A shrinkage of the muscles and tissues

of the throat and jaws and a partial paralysis of the tongue occur.

On postmortem examination, the mouth and pharynx will be found containing punctures and spines. There will be a black spot at the point of puncture surrounded by a zone of dark, cloudy infiltration, about 5/32 inch in diameter, the number of these being equal to the number of punctures in a given locality. Where the punctures are numerous, there is a sloughing of the mucous membranes. The esophagus will be found in a like condition with many spines penetrating its walls, the punctures and zones of inflammation surrounding them of a type indicating a poisoning by the points themselves, as well as an entrance for bacterial invasion.

Within an hour after death, the structures are decomposed to such an extent that they will tear upon handling, often not bearing their own weight when picked up on the end of a finger. The anterior portion of the stomach may be in the same condition, but the posterior portion and the intestines seem to escape injury, although there is a mucous exudate into the lumen and evidences of starvation. Otherwise the structures back of the stomach seem free from the damage caused to those nearer the mouth. The stomach and intestines were found to be empty in all cases examined, tending to show that the condition of the throat and mouth had rendered eating and drinking impossible.

I treated several cases for this condition by passing the stomach tube and feeding through the tube, also watering the same way; but after a couple of weeks of this treatment and the animal could not yet eat or drink except by use of the tube, the owners became discouraged, discontinued the treatment and let the animals die or took them out and shot them.

I used blisters, liniments, ointments, iodin, ether, alcohol rubs, externally, and various oils and demulcents internally, also potassium iodid, ginger, tincture of opium, mineral oils, whites of eggs, in fact, everything I could find in the materia medica, including strychnin and arsenic. But the patients all just went ahead and died in about the same way, except those that were fed through the stomach tube. They seemed to thrive on the latter treatment as long as it was continued, but the paralysis of the tongue, jaws, pharynx and esophagus did not improve at all in two weeks' time.

This seemed to indicate that either from the substance contained in the spines or in the course of the affection the spines had punctured the vagus or recurrent laryngeal nerves and thus destroyed innervation of these structures. Other nerves and structures were also very likely destroyed. As all my autopsies were in the field, the microscopic degenerative changes were not noted.

If there is other feed available, this condition does not exist as horses will not eat these thistles if other feed is to be had. Cattle, mules and burros do not seem to be affected by the weed; at least, I have not had my attention called to it during my stay in this locality, two years of which were served in the capacity of county livestock inspector during the recent foot-and-mouth disease outbreak, when even squirrels and rabbits run over by automobiles were brought to my office for examination. If cattle, mules, burros, sheep, goats and hogs were affected, very likely they would have been brought to my attention as this service in Butte county was free of charge at that time.

My conclusions were that the condition could be prevented in pastures by supplemental feeding when feed was short and the thistles in bloom or standing dead in the field, if these pastures had to be used at that season, and by burning all hay that contained any very great amount of the thistle at haying time and replacing by good hay.

Treatment does not seem to be justified, as it is usually a very poor grade of horses that are allowed to become thus affected by confinement in that kind of a pasture, and if the practitioner were willing to donate the treatment, it is doubtful if the owner would spend the necessary time to help with the experiment as most of the owners of that kind of stock want a twenty-four-hour cure or "Kill the patient and replace it for $15.00." So a practitioner cannot experiment on these cases except at a loss of time and money on a condition that should not be allowed to exist in the first place if the humane society did its duty, provided, of course, they knew of the conditions under which these horses were being pastured.

Now, when I find one of these cases, I tell the owner that his best move is to kill and dispose of the animal and replace it with the money that would be required for treatment, if treatment were decided upon, and in most instances my advice is acted upon. To the best of my knowledge, there have been no recoveries from the condition in this section, many having confused it with botulism.

S. A. Freeman, D. V. M.

Gridley, Cal.

AZOTURIA

In reading the January issue of Veterinary Medicine, I came across the report by Dr. N. E. Peigh on potassium iodid in azoturia. It brought to memory some of my earlier experiences with this at that time dreaded disease.

Twenty-one years ago, business circumstances caused me to locate in a territory that at that time was a real hot bed or incubator for this disease. I was connected with a horse firm having headquarters in a Connecticut city. This firm handled all classes of horses but specialized in fancy pairs of light and heavy carriage horses. There was no trouble at all in disposing of them. The trouble was in finding suitable animals. The firm decided to send me into Iowa as a picker-up or rather to locate so that they would lose no good chances to buy.

Up to the time I left Connecticut, I had had very little if any experience with azoturia. In fact, I think the only case I had ever seen at that time was a case brought in to the Ontario Veterinary College infirmary while I was a student there. I located in Iowa in the very center of the horse selling territory. Nearly every farm had horses that were being prepared for the eastern buyers. At that time the average farmer did not understand the results of lack of exercise on forced fed horses the way he does now, so the result was azoturia and lots of it.

I tried everything in the line of treatment that I could hear or read about, with not very good results. However, I was meeting with as good success as the average practitioner. But the results obtained were so discouraging that when a horse went down with azoturia, he was considered as good as dead, and in fact he was just about, the average of recoveries being very small.

To show how I got started on the road to success, I will cite the case that started me. I had been treating a horse right in town. This horse had been down three days, and as far as I was concerned, it was a case for the rendering tank. But the owner was one of those fellows that did not believe in giving up or neglecting a sick animal. I had promised to call in the evening and give a change of medicine, not expecting any favorable results but simply to satisfy the owner. Instead of calling, I went to a theater party, forgetting all about my promised call. When I returned to the office after the opera, I found the owner waiting for me and not in a very good humor. He even accused me of not having the change of medicine prepared. To square myself, I had to explain to him that such was not the case. I had a bottle containing a pound of magnesium sulphate in a colored solution on the desk that I had prepared for another client to give to a cow. I pointed to the bottle to show him that his medicine was all prepared. That made him feel a bit better, and when I went with him and administered the whole dose, he felt better yet, for you know the average owner of a sick animal thinks the greater the volume of medicine used, the better will be the results.

The next morning, I found the animal improved. You can imagine my surprise, and of course, the only way to account for the improvement was the magnesium sulphate. I repeated the one-pound dose, and that afternoon the animal got up with very little assistance. From then on, I commenced to get results. I got results that advertised me as a specialist on azoturia. Do not get me wrong and think that I considered myself a specialist by any means, but that was the name given me by satisfied clients. I got so much advertising that I was kept busy handling cases. I think I can safely say that I have probably handled as many, if not more, cases of azoturia as almost any other practitioner. Before I discarded the use of slings, I used to have no less than three sets on hand and lots of times had them all in use at once.

I was using potassium iodid at that time, but my doses were too small. I was also using slings, but afterwards found that was a mistake and discarded them except as a help to get the animal on his feet for the first time. Now I do not even use them for that. If the horse cannot get up by just a little tail lift, I let him lie until he can.

I have tried nearly all of the new treatments for azoturia but found that if I expected to obtain results, I had to stick to my old line of treatment.

When I commenced to get results the following is the line of treatment that I followed. I have changed it somewhat since with equally good results. At that time I knew nothing about arecalin or lobelin sulphate, drugs that I have since substituted for chloral hydrate and the injection pump.

The very first thing, I administer two pounds of magnesium sulphate as one dose, then pass the catheter. After this is done, I see to the general comfort of the patient. If he is outside and exposed to the weather, he is moved to the nearest shelter. Then I give one-half grain arecalin and one-fifth grain lobelin sulphate hypodermically and one-half ounce potassium

iodid orally in solution. This is followed up with half-pound doses of magnesium sulphate twice a day until the animal gets up. Two-dram doses of potassium iodid are given each eight hours, with one-tenth grain lobelin sulphate twice a day. The animal is kept well covered and bedded. If delirious the head is tied both ways to keep the patient from injuring himself. Wood alcohol is rubbed on the muscles of the back and hips, using it freely and keeping the parts well covered.

The catheter is passed only once a day. I think we have all made mistakes by using this instrument too often. Before I began using arecalin to empty the rectum, I always used to empty it by enemas. No effort is made to get the animal on his feet until he tries to get up himself. By no means should he be left in a sling. If he cannot stand alone, let him stay down until he can. Give all the water he wants but no grain for at least three days. Let him have all the hay he wants. When the feeding of grain is commenced, keep the oats away for at least a week, or two will be better.

Magnesium sulphate will not act as a purgative in animals suffering from azoturia until after the urine returns to its normal color. That is why it is safe to use large doses; in fact, if one expects results, one must use good sized doses. I treated one case that took twelve pounds before the horse got to his feet. He was down ten days.

Since discarding the use of slings, my patients have not been bothered with atrophied muscles. I have met with very poor results in cases that have been dosed with linseed oil, potassium nitrate or nitrous ether.

I do not think that wood alcohol as a liniment is any better than any other mild stimulating liniment, but I got to using it in the earlier days on account of its cheapness and have always kept up the use of it. I find a few cases that have to be turned from side to side once in four hours, but such cases are rare as most of them will flounder and turn themselves often enough.

I find azoturia hard to handle in stallions for some reason. They seem more susceptible to hysteria and are harder to treat. I almost always keep stallions well loaded with cannabis or chloral. If chloral is used, I give it per rectum.

The hind legs, back and hips are well massaged twice a day while the animal is down. Hand rubbing is not strong enough. For the legs use a sack or rollers with lots of friction. One cannot overdo it, and I think these massages put the animal on his feet several hours earlier than if neglected. Be sure the animal is placed where he cannot bump his head while floundering, and if he is very restless, have an attendant stay with him all the time. I handle these cases by preparing a bottle of some harmless mixture with directions to give each twenty minutes. I find the attendant will watch closer if he thinks he has to be exact as to the time of administering the medicine.

The only time I use slings now is in cases where the paralysis strikes the front extremities instead of the rear. I then find it advisable to use slings to keep the animal from injuring himself. I have had some of these cases fall when floundering in such a way as to badly lacerate the lips between the teeth and ground and cause ugly wounds.

The line of treatment I have given is for severe cases or ones that have gone down. In mild cases or those that have not gone down, I give one-half pound magnesium sulphate and two drams potassium iodid, cover up well and encourage sweating. The main thing is to keep the patient quiet.

If great care and attention to the general comfort and protection of the animal is overlooked, this line of treatment will not be any more successful than any other. I find that cuts and bruises on horses suffering from azoturia, if not properly attended to, will develop into ugly sores and very soon into septicemia resulting in death.

The very first thing to do when attending a case of this disease is to see that every cause or chance for injury be removed. One of the most common causes is the shoes, especially so if the animal happens to be rough shod, and a great percentage of them are. Remove the front shoes at once if the horse is the least bit restless. If the patient is very uneasy, do not make a mistake and overlook colicky pains and think the contracted muscles are wholly to blame for the uneasiness.

When colic is present, do not try to treat it as ordinary colic. The strychnin must be left out. Also forget raw linseed oil. If a cathartic has to be used, give about half a dose of aloes, but don't use even this unless it is found absolutely necessary. Do not repeat arecalin more than once, and in repeating I find it advisable to wait at least an hour.

The main thing in treating colic accompanying azoturia is to remove the cause. I never get fooled any more by giving some drug the

effect of which will cover up the symptoms of pain with the cause still present. I did so a few times at first to my sorrow. Any good intestinal antiseptic that will prevent the formation of gas will usually remove the cause.

Another very important thing to attend to while treating a case of azoturia is to watch for bed sores. Don't let them get the least bit of a start. One bruise or chafe overlooked can cause lots of after trouble. Keep the patient from getting them if possible, but if they can't be prevented, you certainly can care for them as soon as they show. In treating such sores, do not use anything greasy or oily. Use lotions and powders. Of course, if the sore gets the best of you and becomes dry and hard, it must be softened. In such cases use glycerin instead of oils.

Pay special attention to bruises around the head. A horse suffering from azoturia does not seem the least bit particular about his head and will certainly bruise it badly if allowed to.

E. E. Burdick

Huron, S. D.

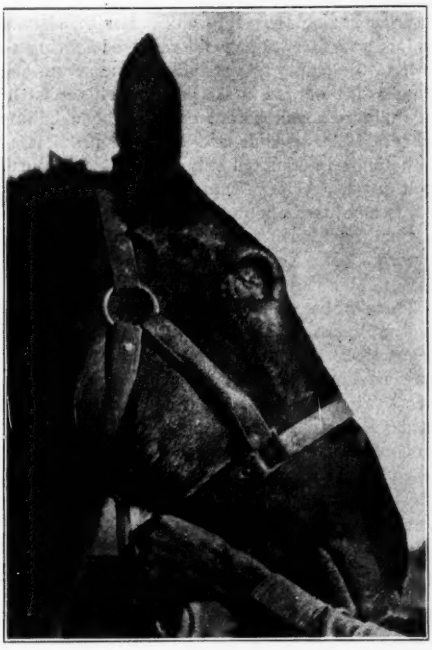
ABLATION OF THE EYE AND ITS APPENDAGES

It was thought a description of this operation might be of interest, as a search of veterinary surgical books reveals very little on the subject. The operation is really an ablation of the eyeball and appendages, and the suturing together of the eyelids.

The indications for the operation are cancerous conditions, chronic conjunctivitis with blindness, and a loss of the eyeball through accident leaving an unsightly socket. The fitting of a glass eye is impracticable due to the cost. The operation should never be attempted unless the animal has one sound eye, and is a useful subject in other respects. One-eyed animals are often used for draft and do quite as much work as sound animals.

Technic

The operation is performed in the recumbent position; the operating table is preferable, although casting hobbles may be used. Profound anesthesia is preferable, although local and conduction anesthesia may be used with satisfactory results. If local and conduction anesthesia is used, the patient should be given two ounces of chloral hydrate about twenty minutes before casting. A 2 per cent solution of cocain hydrochlorid in 1-1000 adrenalin solution seems to be very satisfactory for local anesthesia. About 3 c.c. of this solution is injected around the optic nerve through the fatty pad above the eye. In most individuals it is necessary for the needle to be inserted about one and one-half inches. Both eyelids are next injected about one-half inch from their ciliary border. The conjunctiva is now injected at about one-fourth inch intervals and as near to the optic nerve as possible. Strict asepsis must be observed throughout the entire operation if primary union is to take place. A 2 per cent solution of chlorazene has been found to be satisfactory for irrigation of



the cavity prior to the operation. Two strong silk threads are stitched through the center of each eyelid at about one-half inch interval. These are for use by the attendant in retracting the eyelids.

An incision through the conjunctiva encircling the entire eye is next made with sharp pointed scissors near the ciliary borders. The incision should be made to nearly approach the borders near the canthi. By blunt dissection the conjunctiva is separated from the other tissues. It is very important to remove all of this membrane. A curved, blunt-pointed pair of scissors are now used to sever the various muscles attached to the eye. The eyeball should hang very loosely in its orbit. The fingers are

passed over the eyeball and it is lifted from its socket as far as possible. The scissors are inserted in the cavity and the optic nerve severed near the foramen. This is done so that there will be no long stump to become infected. There will be some hemorrhage but never serious; however, it is best to pack the entire cavity with sterile cotton while the operation is being completed.

The next step in the operation is to cut away the ciliary border of the eyelids. This is done with scissors about one-fourth inch from the border. The dissection must encircle the canthi. The lacrimal glands are removed with a sharp scalpel and the third eyelid removed leaving as little of the stump as possible. Some serum and blood will be noted in the cavity. This must be carefully removed before suturing by a bailing process. The eyelids are neatly approximated with single interrupted sutures about one-fourth inch apart. A large mattress suture of heavy silk is also used about the center of the eyelids. A small opening is left near the medial canthus for drainage.

After Care

Considerable swelling will be noticed in about twelve hours following the operation. This seems to be best controlled by chlorazene pack. The swelling usually disappears in about four days. There is also some leakage of serum and fluid. If the operation is performed under aseptic conditions, there should be no infection. The sutures are removed about the eleventh day and the animal returned to duty. After union takes place, there is only a small scar and a slight depression which is certainly preferable to an ugly cavity continually discharging fluids.

Joseph H. Dornblaser
Captain, Veterinary Corps
Fort Huachuca, Arizona

Records of the United States meat inspection service during the last fiscal year show that tuberculosis continues to be the most serious and widespread disease affecting cattle and swine at time of slaughter. These two kinds of stock constitute the great bulk of food animals in the United States. The results of postmortem inspection show that tuberculosis was responsible for considerably more condemnations than all other diseases and ailments combined. This fact, based on the slaughter of approximately 76,000,000 food animals of all kinds, merits the attention of livestock producers. It indicates the necessity for continuing the campaign to eradicate tuberculosis with the utmost vigor.

CRYPTOGAMIC POISONING IN HORSES AND MULES

The unusually wet fall in Mississippi last year caused much damage to corn and hay in the fields. For the same reason, peas, soy beans, sorghum and other forage crops were not harvested but rotted and molded as they stood. With live stock fed this damaged feed or turned into such fields to graze, it was not unreasonable to expect more than the usual in the way of digestive disorders, poisoning from cryptogams or fungi, and bacterial ferments.

In my experience, I have recognized two general types of mold poisoning in mules and horses, presenting in each a fairly regular chain of symptoms. In one type asthenia, vertigo, high temperature, rapid pulse and icteric mucosa, are the prominent features. In the other type, the symptoms are mainly the same with the exception of the mucosa, which is a very pronounced reddish color. In these cases this is almost diagnostic. In either type, slight, colicky pains, a rather severe colic, urinary disorder, constipation or diarrhea, may be present.

The following are typical cases of the first type:

Case No. 1. Five-year-old mule, weighing about 900 pounds, in fair condition, was standing in a box stall in a listless attitude with head hanging low and ears drooping. The mule had first refused feed twenty-four hours before. He had been getting weaker since he was first noticed sick. Further investigation revealed that he had had access to sour and molded corn just hauled from the wet fields. With some difficulty, the animal was prodded out of the stable. He almost dragged his legs as he walked and reeled from side to side. The temperature was 105.5; pulse 90, small and weak; respiration slow; peristalsis weak; visible mucous membranes perceptibly icteric. Eliminating the possibility of influenza in its early stage, which the clinical picture together with the high temperature and rapid pulse suggested, and taking into consideration the history of the case, I made my diagnosis mold poisoning. Two pounds of magnesium sulphate, dissolved in a half gallon of warm water, were given via the stomach tube, and two ounces of potassium iodid prescribed to be given in two-dram doses in a drench every three hours. The medicine was faithfully given even through the night. No improvement was noticed in the mule for thirty-six hours, after which it was gradual until at the end of two weeks the mule was normal.

Case No. 2. Eight-year-old mule, weighing about 1000 pounds, in good condition, presenting precisely the same symptoms as in case No. 1, with the exception that the temperature was half a degree higher and excessive urination was in evidence. The treatment and course of the disease were about the same as in the first case with complete recovery.

The treatment given the two mules was suggested to me in the work of Professor James Law as being the most logical in fungi poisoning. The object of the magnesium sulphate was to aid elimination through the bowels, and the potassium iodid acted as an antiferment to neutralize the fungi and aid in elimination through the kidneys.

Case No. 3 was fairly typical of the second type of mold poisoning as I have observed it. Late in the afternoon of December 14th a farmer came to my office and told me he found one of his mules dead in the stable that morning, also that he had another horse sick. He said the horse dragged around with little life when he was forced to move and staggered. When standing the animal's head hung nearly to the ground and he was purging badly. I made a long distance diagnosis of mold poisoning and gave a prescription of potassium iodid to be given in two-dram doses every three hours. The next morning I was called to see the horse. He was a bay gelding, eight years old, weighing 1100 pounds, in fair condition, but gaunt and drawn, having slight colicky pains, purging profusely, rectum dilated so that the temperature could not be taken, pulse weak and small, 70, respiration slow, mucous membrane of eyes and mouth almost as red as a radish. On moving the horse reeled. Hay that the horse had been fed was shown to me, and it was badly molded alfalfa. My diagnosis of mold poisoning was confirmed.

As the horse had been given the potassium iodid prescribed, I put him on a full dose treatment of a popular intestinal antiseptic put up by a reliable pharmaceutical house. This was done to help correct the diarrhea, with the hope of allaying fermentation and to soothe the irritated intestinal tract. In addition the animal was allowed a reasonable amount of flour gruel as he would take it, this being good for nourishment and to aid in overcoming the diarrhea. Three days later, the owner reported that the horse had recovered.

In my practice I have had a good many cases analogous to the ones described in the foregoing but most of the affected animals dying. I was for a long time mystified as to what the disease presenting these fairly regular symptoms was. Now I am fairly convinced it is mold poisoning. Taken early and rationally treated, I think a good percentage of the affected can be saved and many cases prevented by not allowing the animals access to the source of trouble.

No doubt, the sunshine and the natural drying out process of the fields destroy the danger of poisonous fungi. Thus, the fields in which there is moldy forage may be hazardous to graze in warm, cloudy weather but reasonably safe after some days of sunshine. Also moldy feed that is stored in the crib or mow may be fed with comparative safety if it is thrown out into the sun, shook about and sunned on favorable days.

Jos. T. Alston, M. D. C.

Tupelo, Miss.

EVERTED RECTUM AND UTERUS IN A SOW

I was called to the country one evening about 4 o'clock to treat a Duroc sow, about eighteen months of age. She had given birth to five pigs, and according to the attendant the animal ate well and no abnormal conditions were noticed. This was on September 5th. On the morning of September 9th when the hogs were fed, this sow did not come as quickly as usual for her feed. Closer observation of her showed that the entire uterus was being dragged on the ground by the animal as she came through the mud to the feed trough. The rectum was also everted, lying on the upper surface of the uterus.

The attendant at once lost all hopes of recovery, so did not call me to treat the animal for three days. He later decided it might be advisable to call me. On arriving at the farm, I made a careful examination of the patient, finding the entire uterus a dark purple color, the mass being hard and resistant to pressure. The rectum was nearly in the same condition. I had the attendant bring a couple of gallons of warm water, also a clean tablecloth on which to lay the uterus and rectum when washed. The parts were carefully cleansed in a 1-1000 solution of potassium permanganate. Then a coating of granulated sugar was applied.

An aspirating needle was inserted in the ventral surface of the uterus, withdrawing a quantity of water which caused a reduction in size of the affected part. Then with considerable difficulty, I replaced both the uterus and rectum,

placing three sutures in the rectum and four in the vulva to guard against recurrence of eversion. The attendant was told to cut the sutures in the rectum in eighteen hours. An opening of sufficient size for urine to pass was left in the vulva.

The patient was given 30 cc. mixed bacterins. The farm is owned by a city man who said he did not wish to go to any considerable expense with this sow unless I knew she would get well. Hearing nothing about the case for some time, I supposed the animal had died, but three weeks later I saw the attendant and was surprised to learn that the sow was eating fine and doing well. However, the milk flow did not seem to be sufficient for the pigs so they were put with another sow.

W. A. Wallace, D. V. M.

Ashland, Ky.

HEMORRHAGIC SEPTICEMIA (OVINE)

The writer has had occasion recently, in several instances, to try out the immunization of sheep with the two agents at our command, viz: hemorrhagic septicemia aggressin and hemorrhagic septicemia bacterin, and while immunization of healthy herds with the aggressin has proved 100 per cent efficient so far, the desired results with the same agent in diseased herds have not been accomplished. Bacterins in infected herds, however, have given gratifying results in my experience. I will relate one instance in which I used bacterins and received results most encouraging for their further use in similar circumstances.

A client called one afternoon during the latter part of October, informing me that he had five dead lambs and six sick ones and asked me to drive out and "do something at once." On arrival at the farm the following history of the herd was obtained from the owner.

Thirty-five fine Shropshire lambs, ranging from six to seven months of age, were occupying a thirty-acre bluegrass pasture and also had access to a twenty-acre cornfield. These lambs had been turned into the cornfield about three weeks previous to my visit. Feeding and watering conditions were ideal and the lambs were doing extra well. The evening before I was called, they were apparently in good health, as the owner said that he had paid particular attention to them. When going through the pasture about noon the next day, he found five dead lambs and six sick ones. Realizing something must be done without delay, assistance was summoned in the matter.

The sick lambs were observed and the following symptoms revealed. All were showing prostration; three were in a comatose condition while the other three would walk off with a staggering gait when lifted to their feet. Signs of bloating were noted in the three comatose lambs. Temperature ranged from 106 to 108 degrees F.; pulse and respiration accelerated; head drawn back, muscular trembling, grating of the teeth and congested mucosae, urine scanty and slightly tinged with blood; some were showing evidence of diarrhea.

Autopsy was performed on three of the sick lambs and the lesions revealed in each were practically the same. The blood was dark in color; petechiated skin and sub-cutem; large quantity of straw colored fluid in the pleural and peritoneal cavities with petechiae on the serous membranes. The heart also showed petechiation and the lungs showed varying stages of pneumonia in the different animals. Congestion of the liver, spleen, kidneys and all mediastinal and mesenteric lymph glands; inflammation of the mucosae of the intestines; evidence of light infestation with tapeworm was observed in one lamb. Mucous membrane of the bladder showed petechiation and ecchymosis. All of these lambs were fat and in good condition.

After consuming about two hours' time in observing symptoms and performing postmortem examinations, a diagnosis of hemorrhagic septicemia in the acute form was made, and preparations for vaccinating the entire herd were commenced. The owner also had twenty-five head of ewes in another pasture just across the fence from the lambs which he was advised to have vaccinated too. This advice was readily taken.

The well sheep were isolated from the remaining sick ones by being placed on a new pasture where sheep had never been kept before and each animal injected with two c.c. of hemorrhagic septicemia bacterin (ovine). The three sick ones were given four c.c. of the bacterin and placed in comfortable quarters. Forty-eight hours later the entire herd was re-vaccinated with two c.c. of the bacterin. I might mention here that one of the sick lambs died the day before the final vaccination but the other two showed signs of improvement. They were given four c.c. of bacterin, the same as before. No more cases developed and the two sick lambs gradually improved until after ten days, when they seemed as well as ever.

Occasionally we hear remarks relative to bacterin therapy that lead us to believe that the

party employing bacterins has very little faith in their therapeutic action. While I do not consider them to be 100 per cent efficient in every case, experience has taught me that they are of inestimable value in combating certain diseases, as they proved to be in the case just related. In infected herds one must not expect to get the results from one injection that he would from two or more injections at twenty-four or forty-eight hour intervals.

I do not question the therapeutic value of anti-hemorrhagic-septicemia serum, but unless the veterinarian is dealing with valuable lambs, the cost to the client per head for treatment is almost prohibitive. Losses are usually occurring at such a rapid rate in this malady anyway, as to cause the owner considerable lament, and if a high-priced treatment is added with more or less fatalities occurring after treatment, it only adds to the losses already sustained, and as long as I am able to get such excellent results from bacterin treatment, I will use it in preference to the slightly better product at a great deal higher cost.

Another important matter to observe in treating a herd in which losses from this disease are occurring, is to isolate the well animals from the sick ones. Place them in new fields and pastures as far away from the contaminated ones as possible. This entire change of environment aids the bacterins (or any other therapeutic measure) in effecting a cure. When endeavor is made to treat animals without trying to get them away from contaminating sources, beneficial results cannot be expected, as in such cases the causative organism reaches such a high degree of virulency by constantly developing new cases that it is nearly impossible to create enough resistance in the animal body with biologics to ward off the infection. This is a good routine to follow in any infectious disease besides the one under discussion.

Regarding the immunization of healthy sheep against hemorrhagic septicemia infection, the experiments conducted by the Bureau of Animal Industry workers prove to us that hemorrhagic septicemia aggressin is the best agent to employ. Some practitioners claim beneficial results after administering the aggressin in infected herds, but it has not proved so in my practice. Theoretically one could not expect anything but disaster in an infected herd when the aggressin is given, as an aggressin when introduced into the animal body, increases the susceptibility of that particular animal for a short period of time, by repressing the activity of the phagocytes. Therefore, the administration of hemorrhagic septicemia aggressin to exposed animals would be disastrous, theoretically, However, when administered to healthy animals it has proved superior to any other biological product for immunization purposes.

During this era of progress, while we must acknowledge the superiority of hemorrhagic septicemia aggressin over the bacterin in producing a longer and more solid immunity, we must not lose sight of the bacterin, as in it we have an agent that has prevented untold losses in animals affected with hemorrhagic septicemia and one that is applicable to many cases that the aggressin is not.

W. B. Chapman, D. V. M.
Powersville, Mo.

TETRACHLORETHYLENE, A NEW ANTHELMINTIC FOR WORMS IN DOGS

In a recently published article entitled "Tetrachlorethylene, A New Anthelmintic For Worms in Dogs," by Drs. Hall and Schillinger of the Zoological Division of the Bureau of Animal Industry, there appears an account of experimental work with tetrachlorethylene, a drug very similar in chemical composition to carbon tetrachlorid.

From the results of a number of experiments on dogs it was found that this drug was exceptionally effective on both hookworms and round worms and that it could be used in comparatively small doses for effective results. The drug is reported to be from 99.5% to 100% effective against hookworms and 85% to 90% effective against round worms.

Later work published by Dr. A. S. Schlingman in an article entitled "Critical Tests of Tetrachlorethylene, A New Anthelmintic, With Special Reference to its Use on Puppies," in the November (1925) edition of the Journal of the American Veterinary Medical Association, shows from a series of experiments on puppies that the drug has several points of superiority over any other anthelmintic so far discovered for the treatment of hookworms and round worms. According to Dr. Schlingman's work, tetrachlorethylene can be given with comparative safety to puppies. In fact, doses 25 times larger than the therapeutic dose recommended by Hall and Schillinger were administered without ill results or lesions on postmortem.

One of the most valuable features of tetrachlorethylene is that it will not apparently cause asphyxiation in case the drug accidentally gets into the larynx or upper respiratory tract. This is due to the fact that it has a very low boiling point and therefore does not readily volatilize

except at a comparatively high temperature. (121-122 C.)

While the drug has not yet been tried on animals other than dogs, there is every reason to believe that it will be equally as effective for other species of domestic animals.

Tetrachlorethylene is comparatively inexpensive, so its general use for veterinary purposes seems almost certain. The recommended dose according to Hall and Schillinger is 0.2 cc. (about 2 minims) per kilo (about 2 1/5 lbs.).

Parke, Davis & Company of Detroit is the only firm supplying this product at the present time. To facilitate its administration and for the convenience of the practitioner, tetrachlorethylene is marketed in soluble gelatin (elastic) capsules in two sizes, viz., 1 cc. and 3 minims. This firm has recently issued a veterinary bulletin entitled "Capsules Tetrachlorethylene," No. 415, which is fully descriptive of the product and its use, which they will be pleased to mail free on request to any veterinarian interested in the product.

DEFICIENCY DISEASE OR SO-CALLED "FRIGHT DISEASE"

This disease is of much interest at the present time, especially to the dog practitioner. Articles on the subject have given it many different views and at the same time we in the veterinary profession bump up against it every so often, answering a call to kill a mad dog or one having fits. The appearance of that animal together with the history of the case is always one to set us thinking. It teaches us nothing.

At the college I attended, we were taught that this trouble was due to something lacking in the food. Later, working in a veterinary hospital I was informed to advise clients not to feed much meat of any kind, give nerve sedatives and plenty of exercise. Prognosis—generally fatal.

At home at this time I had two litters of Chesapeakes, eight of them about nine months old and four of them about six months. I was informed by mail one day that they were having the so-called "fright fits." Going home for the Xmas vacation it was a pitiful sight to see. First one and then the other. After one would get started, it seemed to excite the rest and probably about five or six of them would start. About the time they finished a few more would begin. I was for taking the gun and ending the whole works.

Everything was tried—a couple died. Then different diets were resorted to. My father got the idea that the thing to try was a raw meat diet. Scraps were obtained from the butcher shops and it surely was a surprise to see those dogs go for the raw meat. We knew then we had hit on something that was going to help. In about two weeks the fits had ceased to appear and did not recur again.

The next case was about a year later. I was called to see a Water Spaniel that had "gone mad." I told the owner to feed raw meat only, for at least a week. There was no recurrence after the first day and has been none since. This dog had two of these fits before I was called.

I was called to my own home to see a Chesapeake bitch, four years old, having fits. She had been taken into the house and thereby missed the raw meat which those in the kennel received about three times a week. This was supplied and she had two more spells which were the last to this date. The same day I received a call by telephone to come and see a valuable Setter that was in bad shape. I found the same thing and after advising the owner what to do, left a four-ounce bottle of potassium iodid in proper solution, as I think it a wise idea to give the owner a little to do. I heard from him about a week later. The dog had one more fit and there has been no recurrence since.

The next case was a Spaniel pup not over five months of age. I was at a gathering about eight miles from home and the owner hearing about another case decided to look me up. I examined the pup out in the car and met the familiar smell of chenopodium around his mouth. I was told that the local veterinarian, about eight miles distant from me, had treated the dog for worms. The history of the case revealed that it was deficiency disease and the animal was put on a diet of raw hamburger. There was also present a paralysis of the hind legs. A few days later he was brought back again and chorea had developed in the hind legs. He was given treatment and in about two weeks was much better and the last report from the owner informed me that the dog was entirely O. K.

I did not mention the fact that the animal should be confined in a yard that is not too large. It does not do well to allow too much exercise, although some is necessary. The quieter the place, the better. Also give the owner something to do. Those cases which have been noticed only a couple of days or less will recover rapidly, while those which have

gone some time, will require a little longer. The last year and a half has shown me that the older the dog, the more time required.

C. C. Pink, D. V. M.

Dousman, Wis.

FOOD POISONING IN A DOG

We are forever pestered in our veterinary literature by people who like to slam some county agent, probably for no other reason than subject matter to write on. It reminds me of small town business competition. A county agent is not our competitor. He is our adjuvant. I take the liberty of saying that I get better financial returns either directly or indirectly from my county agent than from any other one client I have. And he knows as much therapeutics as some "veterinarians" I know. The case I am about to describe was in a valuable pointer bird dog owned by this county agent.

I was called the following morning after the dog was taken sick. History showed the dog had been in a kennel with other dogs of the same breed, varying in age from six months to six years. He had been fed cooked meats and bread, both corn and wheat, soaked in water. The animal failed to eat the day before and was very stupid, something unusual for this dog.

The patient was lying in a crumpled position, showing inability to assume a natural recumbency. There was evidence of great pain periodically. The conjunctiva of the eye was highly congested, pupils dilated. The mucous membrane of the mouth was also congested, and an odor similar to that of black tongue was noted, but there was no excess of saliva. The temperature was 103.8° F., respiration 90, pulse 120. When the dog was raised on her feet, she would fall back down as though she were completely anesthetized.

One-half grain of lobelin sulphate was administered hypodermically, and in about fifteen minutes there was vomited a large quantity of undigested meat with a very disagreeable odor, and a little later there was a slight action of the bowels. Realizing that constipation probably assisted in bringing on this disorder, I gave the dog an enema, with very little results but causing a great deal of pain. An ounce of castor oil was also given. Tincture of nux vomica, tincture of digitalis, of each one and one-half drams, and elixir lactate of pepsin sufficient to make two ounces, was prescribed, with directions to give one dram every three hours.

The next day, the dog was somewhat quieter with a temperature of 103 F., respiration 60, and pulse 90. There had been no decisive action of the bowels yet. Petrolatum with agar was prescribed in half-ounce doses twice daily. Water, milk and raw eggs in small quantities were advised.

The following day no bowel action occurred even after several enemas. Expecting some intestinal trouble, and with the owner's consent, one-half grain of arecalin sulphate was given with the intention to produce action of the bowels or kill the animal. After considerable straining, the dog passed a small amount of hard feces with considerable mucus. The petrolatum and agar were continued with renewed hopes.

The succeeding day there was evidence of the petrolatum passing through. The animal had been sick for one week at this time, and the only visible improvement was a cessation of pain, slight action from the bowels and a slight appetite. The remaining discouraging obstacle was the inability of the patient to use either of her front legs, and her neck was as flexible as that of a chicken with limberneck.

Having in my possession some sodium cacodylate, I decided to carry on my experiment further and administered one cc. hypodermically. The following day the dog could control her head and legs a little better, so another cc. of sodium cacodylate was administered via the same route. In three days, the dog was walking normally and eating everything she was allowed to have. The animal is now in excellent shape and looks better than any of the other dogs in the pack.

H. W. Graves

Union, S. C.

EXTRA-UTERINE PREGNANCY IN A RABBIT

While out hunting the other day I bagged a jackrabbit, the common long-eared variety that abounds in this country and, from time to time, increases until it is a pest. Slitting it down the median line, I removed the viscera and threw it in the car to take home for dog feed. I mention that it was to be used for dog feed because if a resident of this country ever permitted the suspicion to arise that he might "be going to" use a jackrabbit for human consumption, he would be forever disgraced.

Well, as I was going to enter the car, I noticed that one side of the animal had a queer looking bump and on examining it, found a cyst between the external and internal abdominal

muscles. It seemed to be in the body of the middle muscle of the abdomen and on being opened disclosed a round, disc-shaped body, two inches in diameter, and possibly three quarters of an inch thick. It had much the appearance, outwardly, of the hairball found in the rumen of cattle but when being opened disclosed a perfectly formed jackrabbit.

Now what's the answer? Yes, I take a drink occasionally but will take oath that this was not the reason for seeing two rabbits where there should have been but one. Seriously, I am wondering if nature is able to perform her own cesarean when she knows that there will be no noble "hoss doctor" to fly to the relief of her children.

L. S. McCandless

Craig, Colorado

INFECTIOUS VENEREAL GRANULOMATA IN A CASTRATED DOG

On August 17, 1925, early in the morning a client came to the hospital with a native male dog about one and one-half years old. He said that bloody fluid was observed once in a while coming out of the prepuce.

The animal was placed on the table for examination. Palpation over the region of the prepuce produced no pain. Subpreputial nodules were noted. The skin of the prepuce retained its normal color. The sheath was retracted over the penis to get a view of the growths, but it was found impossible, because the nodules blocked the passage, and instead sanguinous, non-purulent liquid was squeezed out. During the examination the dog was observed castrated, and further inquiry from the owner revealed that the animal was deprived of its testicles since he was a pup.

From the symptoms noted plus the history, it was a case of infectious venereal granulomata, a disease fairly common among dogs and bitches in Manila.

The next day the dog was operated on. Dulcine subcutaneously, was used as a local anesthetic. The field of operation was shaved and disinfected. All instruments used were sterilized. An incision was made parallel with the long axis of the penis about three centimeters from the preputial orifice and about ten centimeters in length.

When the penis was exposed, vegetative growths varying in size from a pin-head to as large as a dime became apparent. The small ones were grayish yellow while the large ones were red with raw surfaces. Slight manipulation would induce them to bleed. They were non-pedunculated and found scattered in the mucosa of the penis and prepuce.

All nodules small and large were snipped off with a pair of curved scissors including with them a portion of the mucosa. The operated area was swabbed with 10 per cent zonite solution and then sutured. A pack soaked in the same liquid was applied and retained by a many-tailed bandage. After ten days the owner was notified to get his dog.

On October 30, 1925, the same dog came again. This time the complaint was different. Two enlargements were noted by the owner three days before on both sides of the penis.

The animal was examined again and the following symptoms observed. The swellings were circumscribed and movable. The left one was as large as a goose egg, while the right, that of a hen egg. When pressure was applied the animal did not evince any pain. The consistency was firm. The skin over the enlargements was slightly red. They were locafed at the root of the penis on both sides. The penis was also examined and subpreputial unevenness once more determined. The sheath was stripped off but the penis would not pass out of the preputial orifice. We suspected that the nodules operated on before recurred and that the circumscribed enlargements were tumefied superficial inguinal lymph glands. They were involved through metastasis from the primary nodules.

The owner was advised that the operation this time might prove fatal through excessive hemorrhage and that the condition was apt to recur any time in the future. In spite of the unfavorable prognosis given him, he insisted on the operation.

The animal was prepared and operated on the following day. The same precautions as before were observed. Two incisions were made, one for each enlargement. The tumefied glands were undermined, carefully avoiding as much as possible the cutting of blood vessels. Working with the scalpel and forceps as well as the fingers when found necessary, the two glands were effectively removed. Considerable hemorrhage took place. Spurting vessels were seized with hemostats and twisted and only one ligated. The cavities were packed with gauze saturated with 10 per cent zonite solution. Then the lips of the wounds were approximated with linen sutures interruptedly. The penis was likewise opened and the same procedure as before followed. The animal kept quiet during the

entire operation as if under general anesthesia.

The following day the wounds were examined and the packs removed. The wounds were daily treated with antiseptics and on the 15th of November the animal was sent home apparently cured.

So far as the writers are aware, infectious venereal granulomata in a castrated dog have not been reported. The fact that the animal was castrated early in life points out that the infection was not contracted by copulation, which is the natural way this disease is transmitted. However, Williams claims that artificial or accidental inoculation may take place and this particular case discussed may fall under the latter.

F. F. Turla, D. V. M.
L. M. Yutuc, D. V. M.

Manila, P. I.

PLAN FOR HANDLING AVIAN TUBERCULOSIS ON A FLOCK BASIS

1. Determine the extent of the infection by history, tuberculin test and autopsy.
2. Removal and slaughter of diseased fowls, under official supervision. In extensively infected flocks the exposed fowls should also be slaughtered.
3. Clean thoroughly and disinfect premises under official supervision.
4. Flocks from which diseased fowls have been removed but where the entire flock has not been slaughtered, should be given a physical examination and all fowls in good condition tuberculin tested and should be retested in 60 to 90 days.
5. In the event of reactors being disclosed to the 60 to 90 day retest the flock should be again tested in 6 months.
6. After a negative test and all fowls are in good physical condition the flock should be tuberculin tested annually.
7. All diseased fowls should be killed under official supervision.
8. Droppings should be disposed of so as to not come in contact with poultry.
9. Cleanliness should be maintained and frequent disinfection used.
10. Fowls other than baby chicks should be tuberculin tested before being added.
11. Uncooked table scraps and similar refuse should be discontinued as feed.
12. Consistent effort should be made to exterminate carriers such as rats, mice and pigeons.
13. In the prevention and eradication of avian tuberculosis attention should be given the tuberculosis problem in all kinds of associated livestock especially swine tuberculosis.
14. Owners will be expected to practice careful breeding, correct feeding, proper flock management, principles of sanitation and to use preventive measures toward other fowl diseases.
15. A certificate is issued to owners who will agree to follow the above plan and whose fowls have passed two annual negative tuberculin tests.—Penna. Dept. of Agri., Bureau of Animal Industry.

MEDICATION OF POULTRY

I have found the following method very useful in giving medicine to sick chickens and in feeding those that are unable to eat.

Securely tie a fowl by the legs and wings as in caponizing. Then by stretching the head and neck at a 45-degree angle and holding the mouth open, it is easy to pass a thin six-inch pipe of a dose syringe down the esophagus to the crop, emptying the syringe directly into the crop. It is advisable to keep the neck stretched several seconds after withdrawing the syringe.

I find two ounces of buttermilk beneficial when given two or three times daily to fowls that are unable to eat.

C. M. Hench

Waynesburg, Pa.

THYROIDISM AND GOITER

The following abstract of a manuscript prepared by Dr. Mark White of Chicago on thyroidism and goiter should be of interest to veterinarians.

"Goiter occurs in all breeds of animals and in man in all parts of the world. Without attempting to delimit its occurrence or its frequency in different parts of the world, goiter is apparently more prevalent in foreign-born persons than in Americans of native stock.

"In lime deficiency areas, goiter is more prevalent than in those areas in which lime salts are abundant in the soil.

"Goiter is of common occurrence and frequently proves fatal in nursing animals. According to the observation of the writer, there is invariably some indications of goiter in the young of mothers that are affected. Thus, it would appear that thyroidism and goiter are transmitted to the offspring.

"The thyroid gland is the master gland of the endocrine system and disorders of this gland reflect on the function of all other endocrine

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glands. There is a relation between thyroidism and disorders of the heart, kidneys and digestive system and the disturbances of the sympathetic system.

"Goiter is an effect rather than a cause, and represents one of the many possible symptoms of thyroid disorder. A goiter is caused either by the accumulation of excessive secretion or the accumulation of normal secretion which is not used up or absorbed. No doubt, the symptoms in some cases of goiter are due to iodin deficiency but other factors may be important in the cause of this malady.

"The treatment of goiter varies. In a few cases surgical operation is indicated; that is, where there is degeneration or a calcareous or cartilaginous deposit producing extreme mechanical pressure, but in such cases it is better to restore the gland, if possible, without surgical interference by functional therapy.

"The surgical removal of one-half of the thyroid is, in the opinion of the writer, a grave error. Because of the relatively small percentage of recoveries of goiter after surgical interference, functional treatment is desirable. A large percentage of recoveries have been obtained in all forms of goiter and thyroidism nonsurgically without recurrence and the absence of any injurious effects. Realizing the value of a successful treatment of thyroidism, the writer devoted such time to original research and has developed a functional serum made from a goat affected with parathyroidism that has proven efficient. This serum should be administered at regular intervals by injection either intravenous, intramuscular or into the thyroid in variable quantities, depending upon the case."

—A. T. K.

VOMITING IN DOGS

One of the disagreeable conditions that is not infrequently encountered in small animal practice is persistent vomiting, particularly in dogs.

We have found that cerium oxalate and bismuth compound tablets, containing one grain of cerium oxalate, one grain of bismuth phenolate and anesthesin, one-fourth grain, gives excellent results in checking vomiting in dogs. It is best to give about two of the tablets crushed and dissolved in one or two teaspoonfuls of water. Sometimes the stomach is so sensitive that even the tablets will be ejected. This tablet is also an excellent remedy for seasickness.

N. S. Mayo

The Abbott Laboratories, No. Chicago

SIGNIFICANCE OF TEMPERATURE VARIATIONS IN CANINE DISTEMPER*

For those of us who meet with many cases of the disease, any arbitrary classification of symptoms does not meet with approval, and the greater and wider one's clinical experience, the less one is inclined to single out any definite syndrome as being particularly typical of canine distemper.

One of the greatest difficulties to overcome is the fact that one meets with outbreaks of distemper so widely apart in symptoms that one is struck with the diversity of the disease, its fluctuating mortality, its breed significance and, often, the existence of a definite seasonal variation. These are the points which go far to complete an analogy between distemper and influenza, measles and encephalitis and, to my mind, are very strong evidence in favor of a filtrable virus being the real source of infection.

With regard to the rise of temperature, whilst granting that the bodily reaction to a distemper infection is characterized by a rise of temperature, clinically one does not always meet with such a definite rise, and frequently, even in the initial stages, there is no very definite state of pyrexia, and one meets with cases where no actual evidence of a rise can be ascertained. For one case in which there is a definite temperature reaction of several degrees, there are many in which alteration of temperature is limited to one or two degrees, and throughout the course of the affection this may remain constant.

In the young animal any rise of temperature is usually erratic and frequently, I venture to say, one may be misled with temperature readings by the fact that the least exertion on the part of the distemper patient may cause considerable elevation of the temperature—a point to be remarked on later. Mr. Livesey has mentioned the persistence of a very high temperature for some period. Frequently such persistence of temperature is an indication of eventual nervous symptoms which may manifest themselves quite suddenly during the course of the disease.

Then there is the incidence of a subnormal temperature. It is quite often met with in dogs exhibiting the so-called gastro-intestinal form of the disease, and whilst it must be regarded as a grave sign, such cases may and do recover.—H. W. Dawes.

* From discussion of "Clinical Aspects of Simple Distemper," The Veterinary Record, No. 52, Vol. 4.